

PAGE 1 OF 10

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Washington Headquarters Service, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302 and to the Office of Management and Budget, Paperwork Reduction Project (07040187), Washington, DC 20503.

SEND YOUR COMPLETED FORM TO THE PROCUREMENT OFFICIAL IDENTIFIED IN ITEM 6

460/251

1. This task order award is applicable to CLIN 0002 of the basic contract, N00014-09-D-0710.
2. The funds available for performance of this task order are set forth by the amount shown in the attached Financial Accounting Data (FAD) sheets.
3. SCHEDULE OF SUPPLIES AND SERVICES

ITEM NO.	SUPPLIES/SERVICES	ESTIMATED COST	FIXED FEE	TOTAL ESTIMATED COST & FIXED FEE
0001	Base Period (Design Phase I) The Contractor shall furnish the necessary personnel and facilities to conduct the research effort as described in Section C and provide reports and data in accordance with Exhibit A. 000101 ACRN AA 000102 ACRN AB 000103 ACRN AC			
0002	Option I (Low Band Fabrication, Integration and Test Phase II) The Contractor shall furnish the necessary personnel and facilities to conduct the research effort as described in Section C and provide reports and data in accordance with Exhibit A.			
0003	Low Band Advanced Development Model including source code for any embedded software			
0004	Option II (Integration, Test and Demonstration Phase II) The Contractor shall furnish the necessary personnel and facilities to conduct the research effort as described in Section C and provide reports and data in accordance with Exhibit A.			
0005	High Band Advanced Development Model and HMI system including source code for any embedded software			

0006	Option III (High Band Integration, Test and Demonstration Phase II) The Contractor shall furnish the necessary personnel and facilities to conduct the research effort as described in Section C and provide reports and data in accordance with Exhibit A.			
0007	Spares and maintenance items to support the Advanced Development Model including source code for any embedded software			
0008	Option IV (Integration, Test and Support) (Phase III) The Contractor shall furnish the necessary personnel and facilities to conduct the research effort as described in Section C and provide reports and data in accordance with Exhibit A.			
TOTAL ESTIMATED TASK ORDER CONSIDERATION:				

NSP = Not Separately Priced

4. PERIOD OF PERFORMANCE FOR TASK ORDER

a. The research effort performed under the Base Period (CLIN 0001) (Design Phase I) shall be conducted from date of task order award through ten (10) months thereafter. The government reserves the right to take up to sixty (60) days after conclusion of the Base Period to determine whether or not to exercise Option I and/or Option II.

b. The government reserves the right to exercise Option I (CLINs 0002 and 0003) at any time during the period of performance of the Base Period. The period of performance of Option I can run concurrently with the Base Period. This would allow for early ordering of long lead items. If Option I is exercised, the period of performance of Option I shall be twenty-four (24) months from date of Option I exercise or from the completion of the Base Period whichever is later. The government reserves the right to take up to sixty (60) days after the conclusion of Option I to determine whether or not to exercise Option III.

c. The government reserves the right to exercise Option II (CLINs 0004 and 0005) at any time during the period of performance of the Base Period. The period of performance of Option II can run concurrently with the Base Period. This would allow for early ordering of long lead items. If Option II is exercised, the period of performance of Option II shall be twenty-four (24) months from date of Option II exercise or from the completion of the Base Period whichever is later. The government reserves the right to take up to sixty (60) days after the conclusion of Option II to determine whether or not to exercise Option III.

d. If Option III (CLINs 0006 and 0007) is exercised, the period of performance of Option III shall be twelve (12) months from date of Option III exercise. The government reserves the right to exercise Option IV (Integration, Test and Support) for a period up to ninety (90) days from the completion of Option III (Integration, Test and Demonstration).

e. If Option IV (CLIN 0008) (Integration, Test and Support) (Phase III) is exercised, the period of performance of Option IV shall be twelve (12) months from date of Option IV exercise.

5. STATEMENT OF WORK

- a. The research effort to be performed hereunder shall be subject to the requirements and standards contained in Exhibit A and the following paragraph(s).
- b. The Contractor shall conduct the research effort under the Base Period (CLIN 0001) in accordance with Attachment Number 1, Statement of Work entitled "Electronic Warfare/Information Operations/Line-of-Sight Communication Advanced Development Model" paragraphs 1.1 through 1.1.10 and Technical Design and General Task Requirements paragraphs 2.0 through 2.14.1
- c. If Option I is exercised, the Contractor shall conduct the research effort under Option I (CLINs 0002 and 0003) in accordance with Attachment Number 1, Statement of Work entitled "Electronic Warfare/Information Operations/Line-of-Sight Communication Advanced Development Model" paragraphs 1.2 through 1.2.11 and Technical Design and General Task Requirements paragraphs 2.0 through 2.14.1.
- d. If Option II is exercised, the Contractor shall conduct the research effort under Option II (CLINs 0004 and 0005) in accordance with Attachment Number 1, Statement of Work entitled, "Electronic Warfare/Information Operations/Line-of-Sight Communication Advanced Development Model" paragraphs 1.3 through 1.3.11 and Technical Design and General Task Requirements paragraphs 2.0 through 2.14.1.
- e. If Option III is exercised, the Contractor shall conduct the research effort under Option III (CLIN 0006 and 0007) in accordance with Attachment Number 1, Statement of Work entitled, "Electronic Warfare/Information Operations/Line-of-Sight Communication Advanced Development Model" paragraphs 1.4 through 1.4.1 and Technical Design and General Task Requirements paragraphs 2.0 through 2.14.1.
- f. If Option IV is exercised, the Contractor shall conduct the research effort under Option IV (CLIN 0008) in accordance with Attachment Number 1, Statement of Work entitled, "Electronic Warfare/Information Operations/Line-of-Sight Communication Advanced Development Model" paragraphs 1.5 through 1.5.1 and Technical Design and General Task Requirements paragraphs 2.0 through 2.14.1

6. DELIVERABLES/DISTRIBUTION

- a. Distribution, consignment and marking instructions for all deliverables under this task order shall be F.O.B. Destination in accordance with Enclosure Number 1 of Exhibit A. The address for the cognizant Program Officer is in Block 14 on the DD Form 1155 (Page 1) of this task order for items that can not be sent electronically.
- b. CLINs 0003 and 0005 shall be delivered F.O.B. Destination to Naval Research Laboratory attention of Ms Kimberly Hrin, Head, Systems Development Section, Surface EW Systems Branch Code 5744, c/o Harold Rolfs, Chesapeake Bay Detachment, 5813 Bayside Drive, Chesapeake Beach, MD 20732 telephone number (410) 257-4006, no later than completion of Option I and/or Option II. The delivery shall include source code for any embedded software and be on one or more CDROM(s).
- c. CLIN 0007 shall be delivered F.O.B. Destination to Naval Research Laboratory, attention: Ms Kimberly Hrin, Head, Systems Development Section, Surface EW Systems Branch, Code 5744, c/o Harold Rolfs, Chesapeake Bay Detachment, 5813 Bayside Drive, Chesapeake Beach, MD 20732 telephone number (410) 257-4006, no later than completion of Option III. The delivery shall include source code for any embedded software which shall be on one or more CDROM(s).

7. INSPECTION AND ACCEPTANCE

Inspection and acceptance of deliveries under this contract will be accomplished by the Program Officer designated below, who shall have at least thirty (30) days after delivery for acceptance.

Naval Research Laboratory
4555 Overlook Avenue SW
Bldg 210
Washington, DC 20375-5320
Attn: Kimberly A. Hrin, Code 5744

E-Mail: kim.hrin@nrl.navy.mil

8. CLASSIFIED INFORMATION

Classified information submitted to ONR shall be submitted directly to the attention of ONR's Document Control Unit at the following address and marked in the following manner:

OUTSIDE ENVELOPE (no classification marking):

Office of Naval Research
Attn: Document Control Unit
ONR Code 43
875 North Randolph Street
Arlington, VA 22203-1995

The inner wrapper of the classified material should be addressed to the attention of Betsy DeLong, ONR Code 31, and marked in the following manner:

INNER ENVELOPE (stamped with the overall classification of the material)

Program: Integrated Topside Contract N00014-09-D-0710 Task Order 0002

Office of Naval Research
Attn: Betsy DeLong
ONR Code: Code 31
875 North Randolph Street
Arlington, VA 22203-1995

Classified information submitted to NRL shall be submitted directly to the attention of NRL Code 1226 (Security) at the following address and marked in the following manner:

OUTSIDE ENVELOPE (no classification marking):

Naval Research Laboratory
4555 Overlook Avenue SW
Attn: Code 1226
Washington, DC 20375-5320

The inner wrapper of the classified material should be addressed to the attention of Kim Hrin Code 5744, and marked in the following manner:

INNER ENVELOPE (stamped with the overall classification of the material)

Program: Integrated Topside Contract N00014-09-D-0710 Task Order 0002

Naval Research Laboratory
Attn: Kim Hrin
Code 5744
4555 Overlook Avenue SW
Washington, DC 20375-5320

9. PAYMENT AND INVOICE INSTRUCTIONS (COST REIMBURSEMENT)

9.1 Submission of Invoices

PAYMENT AND INVOICE INSTRUCTIONS (COST TYPE)

All payments shall be made by funds transfers to the bank account registered in the Central Contractor Registration (CCR), <http://www.ccr.gov>. The Awardee agrees to maintain its registration in the CCR including information necessary to facilitate payment via Electronic Funds Transfer (EFT). Should a change in registry or other incident necessitate the payment to an account other than that maintained in CCR, it is the Awardee's responsibility to notify the Administrative Contracting Office (ACO) and obtain a modification to this Award reflecting the change. The Government shall not be held responsible for any misdirection or loss of payment which occurs as the result of an Awardee's failure to maintain correct/current EFT information within its CCR registration.

Wide Area Work Flow (WAWF) has been designated as the Department of Defense standard for electronic invoicing and payment. The Office of Naval Research will utilize the WAWF system. This web based system, located at <https://wawf.eb.mil>, provides the technology for government contractors and authorized Department of Defense (DoD) personnel to generate, capture and process receipt and payment-related documentation in a paperless environment. **Payment Requests/Invoices for supplies/services rendered under this contract shall be submitted electronically through WAWF. Submission of hard copy DD250/invoices will no longer be accepted for payment.**

It is recommended that all persons designated as CCR Electronic Business (EB) Points of Contact, and anyone responsible for submitting payment requests, use the online training system for WAWF at <http://wawftraining.com>. The Vendor, Group Administrator (GAM), and sections marked with an asterisk in the training system should be reviewed. Vendor Quick Reference Guides are also available at (http://acquisition.navy.mil/rda/home/acquisition_one_source/ebusiness/don_ebusiness_solutions/wawf_overview/vendor_information). The most useful guides are "Vendor Self Registration/Account Management" and "Cost Voucher".

To comply with the above initiative, the Awardee must register in WAWF and have the appropriate CAGE code activated. Your CCR EB Point of Contact is responsible for activating the CAGE code in WAWF by calling 1-866-618-5988. Once the CAGE Code is activated, the CCR EB Point of Contact will self-register in WAWF (<https://wawf.eb.mil>) and follow the instructions for a group administrator. After the CAGE Code is set-up on WAWF, any additional persons responsible for submitting payment requests must self-register in WAWF.

After self-registering and logging on to the WAWF system, click on the plus sign next to the word "Vendor" and then click on the "Create New Document" link. Enter the Contract Number (no dashes), Delivery Order (if applicable) and CAGE Code, and then hit Continue. *(Note - Some codes may automatically pre-populate in WAWF; if they do not, they should be entered manually)*

Enter the Pay DODAAC and hit Submit.

Pay DoDAAC: [Use the 6 character "PAYMENT WILL BE MADE BY" CODE on page one of the award document]

Select the "**Cost Voucher**" invoice type within WAWF and hit Continue. This type of invoice fulfills any requirement for submission of the Material Inspection and Receiving Report, DD Form 250. Fill in the additional required information (if it has not been pre-populated) and hit Continue.

Issue Date: [Use the signed date of the award document]

IssueBy DoDAAC: [Use the 6 character "ISSUED BY" CODE on page one of the award document]

Admin DoDAAC: [Use the 6 character "ADMINISTERED BY" CODE on page one of the award document]

DCAA Auditor DoDAAC: [Look up via the AUDIT OFFICE LOCATOR at <http://www.dcaa.mil>. If you encounter any problems finding your cognizant audit office, write to dcaaweb@dcaa.mil or call ONR's DCAA liaison at (703) 696-2599]

Service Approver: [Use the 6 character "ADMINISTERED BY" CODE on page one of the award document]

LPO DoDAAC: [Use the 6 character "ADMINISTERED BY" CODE on page one of the award document] (**Note - this line is required only when the "PAYMENT WILL BE MADE BY" DODAAC is HQ0251 or begins with an 'N'; otherwise leave blank**)

Fill in all applicable information under each tab within the document. Back up documentation (SMB limit) can be included and attached to the invoice in WAWF under the "Misc Info" tab.

Take special care when you enter Line Item information - the Line Item tab is where you will detail your request for payment and material/services that were provided based upon the contract. Be sure to fill in the following two informational items exactly as they appear in the contract:

Item Number: If the contract schedule has more than one ACRN listed as sub items under the applicable Contract Line Item Number (CLIN), use the 6 character separately identified Sub Line Item Number (SLIN) (e.g. - 0001AA) or Informational SLIN (e.g. - 000101), otherwise use the 4 character CLIN (e.g. - 0001).

ACRN: Fill-in the applicable 2 alpha character ACRN that is associated with the SLIN or CLIN. (Note - DO NOT INVOICE FOR MORE THAN IS STILL AVAILABLE UNDER ANY ACRN).

After all required information is included, click on the "Create Document" button under the "Header" tab.

9.2 Payment of Allowable Costs and Fixed Fee

As consideration for the proper performance of the work and services required under this contract, the Contractor shall be paid as follows:

(a) Costs, as provided for under the contract clause entitled "Allowable Cost and Payment," shall not exceed the amount set forth as "Estimated Cost" in Section B, and is subject to the contract clause entitled "Limitation of Cost" or "Limitation of Funds" whichever is applicable.

(b) A fixed fee, in the amount set forth as "Fixed Fee" in Section B, in accordance with the contract clause FAR 52.216-8 "Fixed Fee", shall be paid upon completion of the work and services required under this contract and upon final acceptance by the Contracting Officer. However, the Contractor, shall bill on each voucher the amount of the fee bearing the same percentage to the total fixed fee as the amount of cost billed bears to the total estimated cost not to exceed the amount set forth as "Fixed Fee" in Section B. The total fixed fee billed, shall not exceed the total fixed fee specified in Section B and is subject to the contract clause entitled "Limitation of Cost" or "Limitation of Funds" whichever applies.

(c) In accordance with FAR 52.216-8, "Fixed Fee", the Administrative Contracting Officer (ACO), in order to protect the Government's interest, shall withhold 10% of the fixed fee amount set forth in Section B or until a reserve is set aside in the amount of \$100,000.00, whichever is less. The ACO shall release 75% of the fixed fee reserve upon acceptance of deliverables identified in section F of this contract. The remaining 25% of the fixed fee reserve will be released after receipt of final rates, the contractor has satisfied all other contract terms and conditions, including the submission of final patent and royalty reports, and is not delinquent in submitting final vouchers of prior years' settlements.

9.3 Allotment of Funds

(a) It is hereby understood and agreed that this contract will not exceed a total amount of [REDACTED] including an estimated cost of [REDACTED] and a fixed fee of [REDACTED]

(b) It is hereby understood and agreed that CLIN 0001 will not exceed a total amount of [REDACTED]; including an estimated cost of [REDACTED] and a fixed fee of [REDACTED]. The total amount presently available for payment and allotted to CLIN 0001 of this contract is [REDACTED] including an estimated cost of [REDACTED] and a fixed fee of [REDACTED]. It is estimated that the amount allotted of [REDACTED] will cover the period from date of award through one (1) month thereafter.

10. TYPE OF ORDER

This is a cost-plus-fixed-fee completion task order.

11. CONSENT TO SUBCONTRACT

The services of the following subcontractors have been identified as necessary for the performance of this task order:

Identified Subcontractor	Estimated Cost
ITT	[REDACTED]
Crane	[REDACTED]
NGAS	[REDACTED]
L-3 Narda West	[REDACTED]

The preceding listing shall constitute the written consent of the Contracting Officer required by Paragraphs (c), (d) and (e) of the contract clause at FAR 52.244-2 entitled "Subcontracts". The Contracting Officer's written consent to subcontract is required for:

- (i) services acquired under a cost-reimbursement, time-and-materials, or labor-hour type subcontract or agreement;
- (ii) fixed price contracts that exceed the greater of \$100,000 or 5 percent of the total estimated cost of the contract;

This consent is based upon the information submitted by the prime contractor in accordance with FAR 52.244-2 (f) (1) (i) through (vii).

12. ONR 5252.237-9705 KEY PERSONNEL (DEC 88)

- (a) The Contractor agrees to assign to the contract tasks those persons whose resumes were submitted with its proposal and who are necessary to fulfill the requirements of the contract as "key personnel". No substitutions may be made except in accordance with this clause.
- (b) Contractor understands that during the first ninety (90) days of the contract performance period, no personnel substitutions will be permitted unless these substitutions are unavoidable because of the incumbent's sudden illness, death or termination of employment. In any of these events, the Contractor shall promptly notify the Contracting Officer and provide the information described in paragraph (c) below. After the initial ninety (90) day period the Contractor must submit to the Contracting Officer all proposed substitutions, in writing, at least (30) days in advance ((45) days if security clearance must be obtained) of any proposed substitution and provide the information required by paragraph (c) below.

- (c) Any request for substitution must include a detailed explanation of the circumstances necessitating the proposed substitution, a resume for the proposed substitute, and any other information requested by the Contracting Officer. Any proposed substitute must have qualifications equal to or superior to the qualifications of the incumbent. The Contracting Officer or his/her authorized representative will evaluate such requests and promptly notify the Contractor in writing of his/her approval or disapproval thereof.
- (d) In the event that any of the identified key personnel cease to perform under the contract and the substitute is disapproved, the contract may be immediately terminated in accordance with the Termination clause of the contract. The following are identified as key personnel:

Name	Title
[REDACTED]	Program Manager
[REDACTED]	Technical Director
[REDACTED]	Engineering Manager/Chief Engineer
[REDACTED]	Antenna IPT Lead
[REDACTED]	Systems Engineering Integration and Test IPT Lead
[REDACTED]	Engineering Processing IPT Lead
[REDACTED]	FR/IF Hardware IPT Lead
[REDACTED]	Senior Advisor Communications Lead
[REDACTED]	IO Lead (Argon ST)
[REDACTED]	Senior Advisor EA
[REDACTED]	Software Lead Architecture
[REDACTED]	Thermal Engineering Lead
[REDACTED]	Wideband DRFM Lead (ITT)

13. ONR 55252.242-9720 CONTRACTING OFFICER'S REPRESENTATIVE (COR) (SEP 1996)

The COR for this contract is:

Name: Kim Hrin

Code: 5744

Mailing Address: Naval Research Laboratory, 4555 Overlook Avenue SW, Washington, DC 20375

Telephone No: 202-404-7672

The Alternate COR for this contract is:

Name: None Assigned.

Code:

Mailing Address:

Telephone No:

The COR will act as the Contracting Officer's representative for technical matters, providing technical direction and discussion as necessary with respect to the specification or statement of work, and monitoring the progress and quality of contractor performance. The COR is not an Administrative

Contract N00014-09-D-0710

Task Order 0002

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Contracting Officer and does not have authority to take any action, either directly or indirectly, to change the pricing, quantity, quality, place of performance, delivery schedule, or any other terms and conditions of the contract (or delivery order), or to direct the accomplishment of effort which goes beyond the scope of the statement of work in the contract (or delivery order).

When, in the opinion of the contractor, the COR requests effort outside the existing scope of the contract (or delivery order), the contractor shall promptly notify the contracting officer (ordering officer) in writing. No action shall be taken by the contractor until the contracting officer (or ordering officer) has issued a modification to the contract (or delivery order) or has otherwise resolved the issue.

In the absence of the COR named above (due to reasons such as leave, illness, official travel), all responsibilities and functions assigned to the COR shall be the responsibility of the alternate COR acting on behalf of the COR.

14. COMPREHENSIVE SUBCONTRACTING PLAN

The contractor's Comprehensive Subcontracting Plan entitled, "Northrop Grumman Electronic Systems (NGES) Comprehensive Small Business Subcontracting Plan" effective for the period 01 October 2009 through 30 September 2010 is hereby incorporated into this contract by reference.

15. DATA RIGHTS ASSERTIONS

The Contractor submitted Data Rights Assertions in accordance with DFARS 252.227-7013 and DFARS 252.227-7014 entitled "Identification and Assertion of Restrictions on the Government's Use, Release, or Disclosure of Restrictions on Technical Data and Computer Software" for the Technical Data associated with its Statement of Work entitled, Integrated Topside (InTop) Electronic Warfare/Information Operations/Line-of-Sight Communication Advanced Development Model (ADM)". These assertions are incorporated into this contract as Attachment Number 3.

15. ATTACHMENTS

1. EXHIBIT A entitled "Contract Data Requirements List" (DD Form 1423) - 10 page(s) with Enclosure Number 1, entitled "Contract Data Requirements List - Instructions for Distribution," 2 pages.
2. Attachment Number 1 Statement of Work, entitled, "Integrated Topside (InTop) Electronic Warfare/Information Operations/Line-of-Sight Communication Advanced Development Model (ADM)" - 15 pages.
3. Attachment Number 2, entitled, "Department of Defense Contract Security Classification Specification Form DD 254" - 4 pages.
4. Attachment Number 3 entitled, DFARS 252.227-7013 "Rights in Technical Data - Noncommercial Items and DFARS 252.227-7014 "Rights in Technical Data non commercial items -18 pages.
5. Attachment Number 4, entitled, "Financial Accounting Data Sheets," 2 pages.

CONTRACT DATA REQUIREMENTS LIST

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 440 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget Paperwork Reduction Project (0704-0188), Washington, DC 20503.

A. CONTRACT LINE ITEM NO. Base Period, and Options I through IV (if exercised)		B. EXHIBIT A		C. CATEGORY TOP <input type="checkbox"/> TM <input type="checkbox"/> OTHER <input checked="" type="checkbox"/>	
D. SYSTEM/ITEM Integrated Topside Electronic Warfare/Information Operations/Line-of-Sight Communications Advanced Development Model Task Order 0002		E. CONTRACT/PR NO. N00014-09-D-0710/0002		F. CONTRACTOR Northrop Grumman	
1. DATA ITEM NO. A001	2. TITLE OF DATA ITEM Monthly Technical Progress and Financial Reports			3. SUBTITLE	
4. AUTHORITY (Data Acquisition Document No.)		5. CONTRACT REFERENCE Paragraphs 1.1.10; 1.2.11; 1.3.11; 1.4.1, 1.5.1 of SOW		6. REQUIRING OFFICE ONR Code 31	
7. DD 250 REQ LT*	9. DIST STATEMENT REQUIRED D	10. FREQUENCY Monthly	12. DATE OF FIRST SUBMISSION 15 days after 1 st month after contract award	14. DISTRIBUTION ADDRESSEE See Block 16 and Enclosure Number 1	
8. APP CODE		11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION Monthly thereafter	b. COPIES Draft Final REQ REPRO	
16. REMARKS *Reports shall be delivered in Contractor format approved by the Program Officer. Report shall contain a monthly status of technical progress, including schedule progress, key accomplishments or milestones, technical risk status, and objectives for the next month. The report shall also include any maintenance and/or repairs performed on the system during the reporting period. The report should also contain a breakdown of costs incurred during the month, total expenditures to date, and cost to complete. Information copies of this report shall be distributed in accordance with Enclosure Number 1. Report Copies in addition to Enclosure Number 1 Copies: Program Managers: 1 CDROM to Program Manager Technical Director: 2 CD ROMs COR: 2 CD ROMs Email may be used in lieu of CD ROM if concurred with by the recipient. Distribution authorized to the Department of Defense and U.S. DoD contractors only due to critical technology as determined on 24 March 2010. Other requests shall be referred to the Program Officer in the contract.				15. TOTAL	
G. PREPARED BY LYNN CHRISTIAN / ONR 251		H. DATE 29-Sep-10		I. APPROVED BY VERA CARROLL / ONR 251	
				J. DATE 29-Sep-10	

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A. CONTRACT LINE ITEM NO. Base Period, Options I, II and III (if exercised)		B. EXHIBIT A		C. CATEGORY TOP <input type="checkbox"/> TM <input type="checkbox"/> OTHER <input checked="" type="checkbox"/>	
D. SYSTEM/ITEM Integrated Topside Electronic Warfare/Information Operations/Line-of-Sight Communications Advanced Development Model Task Order 0002		E. CONTRACT/PR NO. N00014-09-D-0710/0002		F. CONTRACTOR Northrop Grumman	
1. DATA ITEM NO. A002	2. TITLE OF DATA ITEM Design Description (DD)			3. SUBTITLE	
4. AUTHORITY (Data Acquisition Document No.)		5. CONTRACT REFERENCE Paragraphs 1.1.10; 1.2.11; 1.3.11; of SOW		6. REQUIRING OFFICE ONR Code 31	
7. DD 250 REQ LT*	9. DIST STATEMENT REQUIRED D	10. FREQUENCY 4 Times	12. DATE OF FIRST SUBMISSION See block 16	14. DISTRIBUTION ADDRESSEE See Block 16 and Enclosure Number 1	
8. APP CODE		11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION See block 16	b. COPIES Draft Final REQ REPRO	
16. REMARKS *Documentation shall be delivered in Contractor format approved by the Program Officer. The documentation shall be submitted one (1) week prior to all design reviews. It shall document the system and subsystem design that satisfies the requirements of this solicitation and all CFR flowed down in the SSD. Subsystem hardware and software interface descriptions equivalent to those in an Interface Control Document (ICD), shall be included in the design description. Installation design characteristics shall also be described in the design description. For the Initial Design Review (IDR) the documentation shall include an outline and the overall architecture and top level design description of a four quadrant system that meets all prescribed requirements. For the Final Design Review (FDR), the documentation shall also contain the selected contractors study, development, architecture, interface descriptions, system and detailed design and drawings including specifications of the single quadrant Advanced Development Model to be delivered. The design description shall be of sufficient detail to allow the government to support and maintain the system and to demonstrate readiness to transition from the Base Period design to Option 1 and/or 2. The Design Description shall be updated to reflect the current system design at the conclusion of Options I, II and III periods of performance. Information copies of this report shall be distributed in accordance with Enclosure Number Report Copies in addition to Enclosure Number 1 Copies: Program Managers: 1 CDROM to Program Manager Technical Director: 2 CD ROMs COR: 2 CD ROMs Distribution authorized to the Department of Defense and U.S. DoD contractors only due to critical technology as determined on 24 March 2010. Other requests shall be referred to the Program Officer in the contract.				15. TOTAL	
G. PREPARED BY LYNN CHRISTIAN / ONR 251		H. DATE 29-Sep-10	I. APPROVED BY VERA CARROLL / ONR 251		J. DATE 29-Sep-10

CONTRACT DATA REQUIREMENTS LIST						Form Approved OMB No. 0704-0188	
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A. CONTRACT LINE ITEM NO. Base Period, and Options I and II (if exercised)			B. EXHIBIT A		C. CATEGORY TOP <input type="checkbox"/> TM <input type="checkbox"/> OTHER <input checked="" type="checkbox"/>		
D. SYSTEM/ITEM Integrated Topside Electronic Warfare/Information Operations/Line-of-Sight Communications Advanced Development Model Task Order 0002				E. CONTRACT/PR NO. N00014-09-D-0710/0002		F. CONTRACTOR Northrop Grumman	
1. DATA ITEM NO. A003		2. TITLE OF DATA ITEM Program Review Agenda and Read Ahead copy of Presentation Materials, Presentation Materials (annotated) and Meeting Minutes				3. SUBTITLE	
4. AUTHORITY (Data Acquisition Document No.)			5. CONTRACT REFERENCE Paragraphs 1.1.10; 2.2.11; 1.3.11 of SOW			6. REQUIRING OFFICE ONR Code 31	
7. DD 250 REQ LT*	9. DIST STATEMENT REQUIRED D	10. FREQUENCY As required	12. DATE OF FIRST SUBMISSION As required	14. DISTRIBUTION			
8. APP CODE		11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION As required	ADDRESSEE See Block 16 and Enclosure Number 1		b. COPIES	
						Draft	Final
						REQ	REPRO
16. REMARKS **Reports shall be delivered in Contractor format approved by the Program Officer. All meeting (including kick off, all program reviews and the initial design review) presentation materials annotated with notes, agenda, drawings and data, action items and meeting minutes shall be provided. Agendas shall be submitted to the Navy for concurrence no later than 1 week before the meeting. The remaining materials will be provided no later than 10 days after the meeting. Information copies of this report shall be distributed in accordance with Enclosure Number 1. Report Copies in addition to Enclosure Number 1 Copies: Program Managers: 1 CDROM to Program Manager Technical Director: 2 CD ROMs COR: 2 CD ROMs Distribution authorized to the Department of Defense and U.S. DoD contractors only due to critical technology as determined on 24 March 2010. Other requests shall be referred to the Program Officer in the contract.				15. TOTAL			
G. PREPARED BY LYNN CHRISTIAN / ONR 251			H. DATE 29-Sep-10		I. APPROVED BY VERA CARROLL / ONR 251		J. DATE 29-Sep-10

CONTRACT DATA REQUIREMENTS LIST						Form Approved OMB No. 0704-0188	
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A. CONTRACT LINE ITEM NO. Options I, II and III (if exercised)			B. EXHIBIT A		C. CATEGORY TOP <input type="checkbox"/> TM <input type="checkbox"/> OTHER <input checked="" type="checkbox"/>		
D. SYSTEM/ITEM Integrated Topside Electronic Warfare/Information Operations/Line-of-Sight Communications Advanced Development Model Task Order 0002				E. CONTRACT/PR NO. N00014-09-D-0710/0002		F. CONTRACTOR Northrop Grumman	
1. DATA ITEM NO. A004		2. TITLE OF DATA ITEM Performance and Acceptance Test Plans, and Procedures and Reports				3. SUBTITLE	
4. AUTHORITY (Data Acquisition Document No.)			5. CONTRACT REFERENCE Paragraphs 1.2.11; 1.3.11; 1.4.1 of SOW			6. REQUIRING OFFICE ONR Code 31	
7. DD 250 REQ LT*	9. DIST STATEMENT REQUIRED D	10. FREQUENCY See Block 16	12. DATE OF FIRST SUBMISSION See Block 16		14. DISTRIBUTION		
8. APP CODE		11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION See Block 16		a. ADDRESSEE See Block 16 and Enclosure Number 1		b. COPIES
					Draft		Final
					REQ		REPRO
16. REMARKS *Plans, Procedures and Reports shall be delivered in Contractor format approved by the Program Officer. Test plans and procedures shall be prepared and provided for conducting full electrical performance and factory acceptance testing of all system components. Additionally, the selected contractor shall prepare and deliver a CTE Technology Demonstration Test Procedure for the ADM. Draft test plans and procedures shall be provided to the Government for review and approval no later than 45 days prior to the scheduled tests. Government comment will be provided no later than 20 days after receipt and final revision, which includes modifications required by the Navy, shall be submitted for final approval no later than 20 days after receipt of comments. Additionally the contractor shall provide the government with a report detailing the results of the performance and acceptance tests/CTE Technology Demonstration Tests within 60 days of successful completion of the tests. Where possible, the CTE Technology Demonstration Test may be combined with factory acceptance tests. Information copies of test plans, procedures and reports shall be distributed in accordance with Enclosure Number 1. Documentation Copies in addition to Enclosure Number 1 Copies: Program Managers: 1 CDROM to Program Manager Technical Director: 2 CD ROMs COR: 2 CD ROMs Distribution authorized to the Department of Defense and U.S. DoD contractors only due to critical technology as determined on 24 March 2010. Other requests shall be referred to the Program Officer in the contract.					15. TOTAL		
G. PREPARED BY LYNN CHRISTIAN / ONR 251			H. DATE 29-Sep-10		I. APPROVED BY VERA CARROLL / ONR 251		J. DATE 29-Sep-10

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A. CONTRACT LINE ITEM NO. Base Period, and Options I, II and III (if exercised)		B. EXHIBIT A		C. CATEGORY TOP <input type="checkbox"/> TM <input type="checkbox"/> OTHER <input checked="" type="checkbox"/>	
D. SYSTEM/ITEM Integrated Topside Electronic Warfare/Information Operations/Line-of-Sight Communications Advanced Development Model Task Order 0002			E. CONTRACT/PR NO. N00014-09-D-0710/0002		F. CONTRACTOR Northrop Grumman
1. DATA ITEM NO. A005		2. TITLE OF DATA ITEM System Specification Document (SSD)			3. SUBTITLE
4. AUTHORITY (Data Acquisition Document No.)			5. CONTRACT REFERENCE Paragraphs 1.1.10; 1.2.11; 1.3.11; 3.4.1 of SOW		6. REQUIRING OFFICE ONR Code 31
7. DD 250 REQ LT*	9. DIST STATEMENT REQUIRED D	10. FREQUENCY See block 16	12. DATE OF FIRST SUBMISSION See block 16	14. DISTRIBUTION	
8. APP CODE		11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION See block 16	ADDRESSEE See Block 16 and Enclosure Number 1	b. COPIES Draft Final REQ REPRO
16. REMARKS *Documentation shall be delivered in Contractor format approved by the Program Officer. The documentation shall be submitted one (1) week prior to any design review. The documentation shall contain the flow down of requirements identified in the combined functional requirements to all hardware and software components associated with each specific requirement. The SSD shall be updated to reflect the current system design at the conclusion of Options I, II and III periods of performance. Information copies of this report shall be distributed in accordance with Enclosure Number 1. Report Copies in addition to Enclosure Number 1 Copies: Program Managers: 1 CDROM to Program Manager Technical Director: 2 CD ROMs COR: 2 CD ROMs Distribution authorized to the Department of Defense and U.S. DoD contractors only due to critical technology as determined on 24 March 2010. Other requests shall be referred to the Program Officer in the contract.				13. TOTAL	
G. PREPARED BY LYNN CHRISTIAN / ONR 251		H. DATE 29-Sep-10	I. APPROVED BY VERA CARROLL / ONR 251		J. DATE 29-Sep-10

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A. CONTRACT LINE ITEM NO. Options I, II and III (if exercised)		B. EXHIBIT A		C. CATEGORY TOP <input type="checkbox"/> TM <input type="checkbox"/> OTHER <input checked="" type="checkbox"/> X	
D. SYSTEM/ITEM Integrated Topside Electronic Warfare/Information Operations/Line-of-Sight Communications Advanced Development Model Task Order 0002			E. CONTRACT/PR NO. N00014-09-D-0710/0002		F. CONTRACTOR Northrop Grumman
1. DATA ITEM NO. A006	2. TITLE OF DATA ITEM User's Operation and Maintenance Manual(s)			3. SUBTITLE	
4. AUTHORITY (Data Acquisition Document No.)			5. CONTRACT REFERENCE Paragraphs 1.2.11; 1.3.11; 1.4.1 of SOW		6. REQUIRING OFFICE ONR Code 31
7. DD 250 REQ LT*	9. DIST STATEMENT REQUIRED D	10. FREQUENCY See block 16	12. DATE OF FIRST SUBMISSION See block 16	14. DISTRIBUTION ADDRESSEE See Block 16 and Enclosure Number 1	
8. APP CODE		11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION See block 16	b. COPIES Draft Final REQ REPRO	
16. REMARKS *The manual(s) shall be delivered in Contractor format approved by the Program Officer. The contractor shall provide a manual suitable for use by Government and support contractor engineers to operate and maintain the EW/IO/Comms system and associated equipment. Manual to be provided in draft form no later than 60 days prior to delivery of the system. Government comments shall be provided no later than 20 days after receipt; final revision including Government comments shall be submitted for final approval no later than 20 days after receipt of comments. Preliminary copies shall be provided with the ADM system on delivery to CBD. Final copies shall be provided with the final manufacturing drawings and software/firmware. Information copies of this document(s) shall be distributed in accordance with Enclosure Number 1. Report Copies in addition to Enclosure Number 1 Copies: Program Managers: 1 CDROM to Program Manager Technical Director: 2 CD ROMs COR: 2 CD ROMs Distribution authorized to the Department of Defense and U.S. DoD contractors only due to critical technology as determined on 24 March 2010. Other requests shall be referred to the Program Officer in the contract.				15. TOTAL	
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		L. APPROVED BY VERA CARROLL / ONR 251			

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A. CONTRACT LINE ITEM NO. Options I, II and III (if exercised)		B. EXHIBIT A		C. CATEGORY TOP <input type="checkbox"/> TM <input type="checkbox"/> OTHER <input checked="" type="checkbox"/>	
D. SYSTEM/ITEM Integrated Topside Electronic Warfare/Information Operations/Line-of-Sight Communications Advanced Development Model Task Order 0002		E. CONTRACT/PR NO. N00014-09-D-0710/0002		F. CONTRACTOR Northrop Grumman	
1. DATA ITEM NO. A007	2. TITLE OF DATA ITEM Technical Data Package (TDP)			3. SUBTITLE	
4. AUTHORITY (Data Acquisition Document No.)		5. CONTRACT REFERENCE Paragraphs 1.2.11; 1.3.11; 1.4.1 of SOW		6. REQUIRING OFFICE ONR Code 31	
7. DD 250 REQ LT*	9. DIST STATEMENT REQUIRED D	10. FREQUENCY See block 16	12. DATE OF FIRST SUBMISSION See block 16	14. DISTRIBUTION	
8. APP CODE		11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION See block 16	ADDRESSSEE See Block 16 and Enclosure Number 1	b. COPIES
					Draft Final
					REQ REPRO
16. REMARKS *Technical Data Package (TDP) shall be delivered in Contractor format approved by the Program Officer. For all software and firmware, the package shall also include, design documentation, all non-commercial scripts and build configuration files used to create object code from source code, a list of all items, including all commercial software, tools necessary to convert source code to object code, description of all algorithms and the identification of all external dependencies including tools, compilers, libraries and their versions. The TDP will be updated at the conclusion of Option 3 to reflect the final configuration of the ADM as demonstrated at CBD. The TDP shall be provided within 60 days of completion of factory tests and final delivery within 30 days after receipt of any government comments. Additional Report Copies: Information copies of this report shall be distributed in accordance with Enclosure Number 1. Report Copies in addition to Enclosure Number 1 Program Managers: 1 CDROM to Program Manager Technical Director: 2 CD ROMs COR: 2 CD ROMs Distribution authorized to the Department of Defense and U.S. DoD contractors only due to critical technology as determined on 24 March 2010. Other requests shall be referred to the Program Officer in the contract.				15. TOTAL	
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A. CONTRACT LINE ITEM NO. Base Period, and Options I, II, III and IV (if exercised)			B. EXHIBIT A		C. CATEGORY TOP <input type="checkbox"/> TM <input type="checkbox"/> OTHER <input checked="" type="checkbox"/>													
D. SYSTEM/ITEM Integrated Topside Electronic Warfare/Information Operations/Line-of-Sight Communications Advanced Development Model Task Order 0002			E. CONTRACT/PR NO. N00014-09-D-0710/0002		F. CONTRACTOR Northrop Grumman													
1. DATA ITEM NO. A008		2. TITLE OF DATA ITEM Final Report			3. SUBTITLE													
4. AUTHORITY (Data Acquisition Document No.)			5. CONTRACT REFERENCE Paragraphs 1.1.10; 1.2.11; 1.3.11; 1.4.1; 1.5.1 of SOW		6. REQUIRING OFFICE ONR Code 31													
7. DD 250 REQ DD*	9. DIST STATEMENT REQUIRED D	10. FREQUENCY 1 time	12. DATE OF FIRST SUBMISSION 45 days after completion of base period		14. DISTRIBUTION													
8. APP CODE		11. AS OF DATE	13. DATE OF SUBSEQUENT SUBMISSION If exercised end of Option I Period of Performance***; If exercised end of Option II Period of Performance***		<table border="1"> <tr> <th colspan="2">ADDRESSEE See Block 16 and Enclosure Number 1</th> <th colspan="2">b. COPIES</th> </tr> <tr> <th>Draft</th> <th>Final</th> <th>REQ</th> <th>REPRO</th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>		ADDRESSEE See Block 16 and Enclosure Number 1		b. COPIES		Draft	Final	REQ	REPRO				
ADDRESSEE See Block 16 and Enclosure Number 1		b. COPIES																
Draft	Final	REQ	REPRO															
16. REMARKS <p>*Reports shall be delivered in Contractor format approved by the Program Officer. The final report for the base phase shall include presentation materials appropriately annotated with notes and minutes from the Base Period Final Design Review.</p> <p>**The Final report is due 45 days after completion of the Base Period.</p> <p>The final report shall be provided at the end of Options I through IV, if exercised. The final reports at the conclusion of Options I, II, III, & IV shall contain all relevant information regarding system design, development, integration and test results during the Option periods. The report shall also include an analysis and extrapolation of the performance of the system to a full scale four quadrant configuration; and analysis and engineering rationale for failure to meet specified four quadrant system requirement. In addition, the report shall include any appropriate updates to all information provided in the final report submitted at the end of the base period.</p> <p>Report Copies in addition to Enclosure Number 1</p> <p>Copies: Program Managers: 1 CDROM to Program Manager Technical Director: 3 CD ROMs COR: 2 CD ROMs</p> <p>Distribution authorized to the Department of Defense and U.S. DoD contractors only due to critical technology as determined on 24 March 2010. Other requests shall be referred to the Program Officer in the contract.</p>			15. TOTAL															
G. PREPARED BY LYNN CHRISTIAN / ONR 251			H. DATE 29-Sep-10		I. APPROVED BY VERA CARROLL / ONR 251													
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D. SYSTEM/ITEM Integrated Topside Electronic Warfare/Information Operations/Line-of-Sight Communications Advanced Development Model Task Order 0002				E. CONTRACT/PR NO. N00014-09-D-0710/0002		F. CONTRACTOR Northrop Grumman			
1. DATA ITEM NO. A009		2. TITLE OF DATA ITEM Technical Interchange Meeting (TIM) Materials				3. SUBTITLE			
4. AUTHORITY (Data Acquisition Document No.)				5. CONTRACT REFERENCE Paragraphs 1.1.10; 1.2.11; 1.3.11; 1.4.1 of SOW		6. REQUIRING OFFICE ONR Code 31			
7. DD 250 REQ LT*		9. DIST STATEMENT REQUIRED D		10. FREQUENCY See block 16		12. DATE OF FIRST SUBMISSION See block 16		14. DISTRIBUTION	
8. APP CODE				11. AS OF DATE		13. DATE OF SUBSEQUENT SUBMISSION See block 16		ADDRESSEE See Enclosure Number 1 and block 16	
								b. COPIES	
								Draft	
								Final	
								REQ	
								REPRO	
16. REMARKS All technical interchange meeting minutes, presentation materials (if appropriate) and action items shall be provided. They shall be provided no later than 10 days after the meeting. Information copies of this report shall be distributed in accordance with Enclosure Number 1. Report Copies in addition to Enclosure Number 1 Copies: Program Managers: 1 CDROM to Program Manager Technical Director: 2 CD ROMs COR: 2 CD ROMs Distribution authorized to the Department of Defense and U.S. DoD contractors only due to critical technology as determined on 24 March 2010. Other requests shall be referred to the Program Officer in the contract.						15. TOTAL			
1. DATA ITEM NO.		2. TITLE OF DATA ITEM				3. SUBTITLE			
4. AUTHORITY (Data Acquisition Document No.)				5. CONTRACT REFERENCE		6. REQUIRING OFFICE			
7. DD 250 REQ LT*		9. DIST STATEMENT REQUIRED D		10. FREQUENCY As required		12. DATE OF FIRST SUBMISSION		14. DISTRIBUTION	
8. APP CODE				11. AS OF DATE		13. DATE OF SUBSEQUENT SUBMISSION As required		ADDRESSEE See Block 16 and Enclosure Number 1	
								b. COPIES	
								Draft	
								Final	
								REQ	
								REPRO	
16. REMARKS						15. TOTAL			
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A. CONTRACT LINE ITEM NO. Base Period, and Options I, II and III (if exercised)			B. EXHIBIT A		C. CATEGORY TOP <input type="checkbox"/> TM <input type="checkbox"/> OTHER <input checked="" type="checkbox"/>		
D. SYSTEM/ITEM Integrated Topside Electronic Warfare/Information Operations/Line-of-Sight Communications Advanced Development Model Task Order 0002				E. CONTRACT/PR NO. N00014-09-D-0710/0002		F. CONTRACTOR Northrop Grumman	
1. DATA ITEM NO. A010		2. TITLE OF DATA ITEM Program Management Plan (PMP)				3. SUBTITLE	
4. AUTHORITY (Data Acquisition Document No.)			5. CONTRACT REFERENCE Paragraphs 1.1.10; 2.2.11; 1.3.11; 1.4.1 of SOW			6. REQUIRING OFFICE ONR Code 31	
7. DD 250 REQ DD*		9. DIST STATEMENT REQUIRED D		10. FREQUENCY Updates as required		12. DATE OF FIRST SUBMISSION At kick-off meeting	
8. APP CODE		11. AS OF DATE		13. DATE OF SUBSEQUENT SUBMISSION Updated for program and design reviews		14. DISTRIBUTION ADDRESSEE See Block 16 and Enclosure Number 1	
						b. COPIES Draft Final REQ REPRO	
16. REMARKS *Program Management Plan shall be delivered in Contractor format approved by the Program Officer. The Program Management Plan shall include a description of the selected contractors management structure, an organization chart showing the principal people assigned to the project and their responsibilities and provide contact information for principal interface person for each area. The PMP shall also include a schedule for the effort and a description of the process that will be used to monitor both schedule and cost status during the effort. The PMP shall include emphasis on performance metrics, risk management and the contractor work breakdown structure. The initial PMP shall provide a baseline containing threshold and ceiling values for cost, schedule, and performance parameters established at the onset of the program. Subsequent updates/revisions to the execution documentation shall clearly show changes against the baseline. The status of the program measured against the baseline PMP shall be reported to the Government at Program Reviews and in monthly written reports. PMP Copies in addition to Enclosure Number 1 Copies: Program Managers: 1 CDROM to Program Manager Technical Director: 3 CD ROMs COR: 2 CD ROMs Distribution authorized to the Department of Defense and U.S. DoD contractors only due to critical technology as determined on 24 March 2010. Other requests shall be referred to the Program Officer in the contract.						15. TOTAL	
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4. AUTHORITY (Data Acquisition Document No.)			5. CONTRACT REFERENCE			6. REQUIRING OFFICE	
7. DD 250 REQ LT*		9. DIST STATEMENT REQUIRED D		10. FREQUENCY As required		12. DATE OF FIRST SUBMISSION	
8. APP CODE		11. AS OF DATE		13. DATE OF SUBSEQUENT SUBMISSION As required		14. DISTRIBUTION ADDRESSEE See Block 16 and Enclosure Number 1	
						b. COPIES Draft Final REQ REPRO	
16. REMARKS						15. TOTAL	
G. PREPARED BY LYNN CHRISTIAN / ONR 251			H. DATE 29-Sep-10		I. APPROVED BY VERA CARROLL / ONR 251		J. DATE 29-Sep-10

**CONTRACT DATA REQUIREMENTS LIST
INSTRUCTIONS FOR DISTRIBUTION**

DISTRIBUTION OF TECHNICAL REPORTS AND FINAL REPORT
(A SF 298 must accompany the final report)

ADDRESSEE	DODAAD CODE	NUMBER OF COPIES	
		UNCLASSIFIED/ UNLIMITED	UNCLASSIFIED/LIMITED AND CLASSIFIED
Program Officer E-mail: Betsy.delong@navy.mil	N00014	1	1
David Starkston E-mail: david.starkston.ctr@navy.mil	N00014	1	1
Technical Director Greg Tavik E-mail: tavik@radar.nrl.navy.mil	N00173	1	1
Contracting Officer Representative Kim Hrin E-mail: kim.hrin@nrl.navy.mil	N00173	1	1
Administrative Contracting Officer*	S2103A	1	1
Director, Naval Research Lab Attn: Code 5596 4555 Overlook Avenue, SW Washington, D.C. 20375-5320 E-mail: reports@library.nrl.navy.mil	N00173	1	1
Defense Technical Information Center ATTN: DTIC-OA (Eva Adams or Shari Pitts) 8725 John J. Kingman Road STE 0944 Ft. Belvoir, VA 22060-6218 E-mail: TR@Dtic.mil	HJ4701	2	2

* Send only a copy of the transmittal letter to the Administrative Contracting Officer; do not send actual reports to the Administrative Contracting Officer.

ELECTRONIC SUBMISSIONS OF TECHNICAL REPORTS IS PREFERRED AND ENCOURAGED. ELECTRONIC SUBMISSION SHOULD BE SENT TO THE E-MAIL ADDRESSES PROVIDED IN THE ABOVE TABLE, HOWEVER PLEASE NOTE THE FOLLOWING:

- Only Unlimited/Unclassified document copies may be submitted by e-mail.
- Unclassified/Limited has restricted distribution and a classified document (whether in its entirety or partially) is to be distributed in accordance with classified material handling procedures.
- Electronic submission to DIRECTOR, NAVAL RESEARCH LAB, shall be unclassified/unlimited reports and 30 pages or less. If unclassified and more than 30 pages, hardcopies of reports must be mailed.

- Electronic submission to DTIC shall be unclassified/unlimited reports. If submission is for limited documents, please send them in on a disk or sign up for DTIC's web-based document submission system at <http://www.dtic.mil>. DTIC prefers .pdf, .tif, and .ps files; however, other formats will also be accepted. **NOTE:** DTIC can no longer accept the following file types via email: password protected, zipped or compressed files, file with the extensions: *.vbs, *.cmd, *.exe, *.bat, *.com, *.mp3, *.eml and *.dll.

If the Program Officer directs, the Contractor shall make additional distribution of technical reports in accordance with a supplemental distribution list provided by the Program Officer.

DISTRIBUTION OF PROGRESS REPORTS

The minimum distribution for progress reports is as follows:

ADDRESSEE	DODAAD CODE	NUMBER OF COPIES	
		UNCLASSIFIED / UNLIMITED	UNCLASSIFIED/ LIMITED AND CLASSIFIED
Program Officer E-mail: Betsy.delong@navy.mil	N00014	1	1
David Starkston E-mail: david.starkston.ctr@navy.mil	N00014	1	1
Technical Director Greg Tavik E-mail: tavik@radar.nrl.navy.mil	N00173	1	1
Contracting Officer Representative Kim Hrin E-mail: kim.hrin@nrl.navy.mil	N00173	1	1
Administrative Contracting Officer*	S2103A	1	1

*Send only a copy of the transmittal letter to the Administrative Contracting Officer; do not send actual reports to the Administrative Contracting Officer.

**Task Order 0002
Statement of Work**

**"Integrated Topside (InTop)
Electronic Warfare/Information Operations/Line-Of-Sight Communication
Advanced Development Model (ADM)"**

1.0 Background

The Office of Naval Research (ONR) has established the Integrated Topside (InTop) Program to develop and demonstrate common Radio Frequency (RF) apertures and supporting subsystems capable of performing multiple functions to support multiple warfare areas. The Navy wants to increase the warfighting capability while reducing the number of single function RF systems required on Navy ships and submarines. The Electronics Warfare (EW), Information Operations (IO) and Line of Sight Communications (LOS Comms) multifunction system will exploit the synergy between these three functions to maximize the efficiency of the common elements under a single resource allocation manager (RAM) and over that portion of the spectrum where the requirements and capabilities for Onboard EW, IO and LOS Comms overlap. It is not intended to cover the entire spectrum or capability set to meet all of the Navy's individual requirements for EW, IO and LOS Comms.

The objective of TO 0002 is to design/architect an integrated EW, IO, and LOS Comms system with 360 degrees of coverage in azimuth for Naval Surface Platforms and subsequently fabricate, integrate, test and demonstrate a single quadrant Advanced Development Model (ADM) variant of the system to support the Technology Development (TD) phase of a Navy acquisition program. For the ADM demonstration, ONR intends to leverage the efforts of the Enhanced Surface Electronic Warfare Improvement Program (ESEWIP) Future Naval Capability (FNC) program that is currently designing and demonstrating an advanced millimeter wave (mmW) Electronic Attack (EA) transmitter. It is not intended to cover the entire spectrum or capability set to meet all the Navy's individual requirements for EW, IO and LOS Comms. The ESEWIP transmitter is being developed by Lockheed Martin Corporation under a separate contract. The ESEWIP design information will be provided as Government Furnished Information (GFI) during the Base Period, and the transmitter will be provided as Government Furnished Equipment (GFE) during Option II. ESEWIP design information will be provided as Government Furnished Information (GFI) in the Base Period of performance.

The goal of TO 0002 is to achieve Technology Readiness Level (TRL) 6 for all identified Critical Technology Elements (CTEs) by the end of the Technology Development (TD) phase. The Navy intends to use the results from the development and demonstration of the ADM to support transition into the Engineering and Manufacturing Development (EMD) phase of an acquisition program, and ultimately transition the system into production.

The initial installation platform is planned to be an Aircraft Carrier. The system will also be scalable to meet the EW/IO/LOS Comms requirements for new construction and backfit ships.

The ADM shall:

- Demonstrate increased ship warfighting capability through improved multi-function system performance.
- Demonstrate capabilities beyond those that could be achieved with single purpose federated systems.
- Demonstrate increased topside system flexibility, including
 - Sharing apertures;
 - Sharing subsystems; and
 - Real-time utilization of the EW, IO and LOS Comms functionality.
- Create a scalable EW/IO/LOS Comms capability to support multiple classes of ships; and

- Demonstrate the integration and coordinated control of EW/IO/LOS Comms functions via a common Resource Allocation Manager (RAM), in order to optimize the use of available RF spectrum and hardware.

The ADM shall support multiple simultaneous EW engagements and provide high gain apertures for EW, IO and LOS Comms functions. The ADM shall be backward compatible with existing links and utilize Open Architecture (OA) to allow for forward compatibility with new links. The benefits expected to be realized through the ADM are as follows:

- Enhanced EW capability against modern and evolving threats;
- IO capability at additional frequencies;
- Elimination of the need for separate shipboard Common Data Link (CDL)/Tactical CDL (TCDL)/Hawklink antennas/radomes;
- Enabling of simultaneous multi-beam LOS Comms for point-to-point and networked waveforms;
- Reduced life cycle cost compared to multiple single purpose federated systems;
- Minimization of overall size, weight, radar cross section (RCS) and cost for both the combat system and the ship installation (new construction or ship alteration); and
- Long term upgrade ability.

1.1 Base Period (Design) – Phase I

The Base Period (Design) shall encompass a detailed design phase culminating in a Final Design Review (FDR). During the Base Period (Design), the contractor shall complete a design for an overall system architecture that provides full frequency coverage in accordance with (IAW) the Combined Functional Requirements (CFR). In addition, the contractor shall complete a detailed design for an ADM that includes a Low Band (LB) transmitter and receiver and a High Band (HB) receiver and utilizes the ESEWIP transmitter as the HB transmitter. The ADM shall provide one quadrant of coverage. (See solicitation section entitled, "System Architecture").

During the Base Period (Design), the contractor shall accomplish the following tasks:

1.1.1 Detailed Design

The contractor shall develop and deliver a system design/architecture that satisfies the requirements for the system. It shall also expand on this system design/architecture to develop and provide a detailed design for a single quadrant ADM to meet the InTop CFR and identify any deficiencies in meeting the system requirements that may result from a single quadrant design.

1.1.2 Combat System Interface

The ADM shall interface with a surrogate combat system (to be provided by the Government as Government Furnished Equipment (GFE)). The system shall be capable of receiving tasking from this surrogate combat system or manually through its own engineering Graphical User Interface (GUI)/HMI. The system shall interact with the surrogate combat system as a set of virtual EW, IO, and Communication systems following the design patterns defined by the Surface Navy Combat Systems Product Line Architecture. Each virtual system shall be controlled by its own local control software. Interfaces to the surrogate combat system will be provided in the form of software Application Programmer Interface (API) libraries and supporting infrastructure.

1.1.3 Resource Allocation Manager (RAM) Interface

The contractor shall develop a system to interface with a common InTop RAM (to be provided by the Government as GFE). The system shall be capable of hosting this modular RAM software as an internal component. It shall also be capable of interfacing to it as an external entity as a second mode of operation. Internal control software for each virtual system will request resources from this InTop

RAM to satisfy its tasking. The InTop RAM will make extensive use of ship combat doctrine and rule sets specifically developed to set event prioritization. All requests are prioritized with respect to the ship tactical situation and serviced accordingly. Interfaces to the InTop RAM will be provided in the form of software API libraries and supporting infrastructure.

1.1.4 Electronic Support (ES) Interface

The contractor shall develop a system design to interface with an external ES system (SEWIP Block 2). The ADM will either interface with a SEWIP Block 2 system or a Multi-function Electronic Warfare (MFEW) system as a stand-in during Option III (Integration, Testing and Demonstration). The ES system will provide emitter reports and rapid response cueing to the system. This interface will also support real-time coordination of engagements between the ES system and the EW function of the ADM. The ES system will be provided by the Government during Option III (Integration, Testing and Demonstration)

1.1.5 Communications and IO Interfaces

The ADM shall interface with communications (terminals, modems and/or networks) and IO equipment to implement the Communication and IO functions. During Option III (Integration, Testing and Demonstration), the Government will provide equipment as GFE and/or government furnished information (GFI) for this purpose. If the contractor has its own equipment, it may propose utilizing it in addition to, or in place of, the GFE.

The government has a goal of utilizing common electronics to perform the EW, IO and Comms functions. The contractor is encouraged to design and demonstrate the ability to transmit and receive a comms waveform utilizing the same electronics that will be used for the other functions (EW or IO). If this is done, it shall be in addition to utilizing the GFE or selected contractor(s)'s supplied modems and legacy equipment.

1.1.6 Electromagnetic Environment

The Government will provide a representative ElectroMagnetic Environment (EME) as GFE during Option I (Design). The contractor shall address how its design will operate in this environment.

1.1.7 Kick-Off Meeting

Within one (1) month after TO 0002 award, the contractor shall support a Kick-Off Meeting at the selected contractor(s)'s facility for the purpose of reviewing the program requirements, the CFR, the CTEs, the SSD and the Program Management Plan (PMP).

1.1.8 Initial Design Review (IDR)

Within seven (7) months after TO 0002 award, the contractor shall conduct a comprehensive review of the planned system architecture design. This shall include the system, subsystem, hardware, software and interface design planned for the system and resulting ADM. The contractor shall provide sufficient detail to demonstrate a thorough allocation of requirements to system and subsystem specifications, that a complete risk analysis has been performed on the chosen design, that the software and interface requirements specifications are complete, that there is a thorough understanding of the operational concepts necessary for the system and that all tests are traceable to fulfilling System Specification Document (SSD) requirements.

1.1.9 Final Design Review (FDR)

Within twelve (12) months after TO 0002 award, the contractor shall conduct a comprehensive review of the ADM detailed design including system, subsystem, hardware, software, and interface designs. The ADM designs shall be sufficient to transition from the design phase to the fabrication, integration and test phase. The potential impact on future Life Cycle Costs will also be included in the ADM

system design analysis. The Government will review the design to assure compliance and traceability of requirements and to verify that the design will provide the operational capabilities needed.

The contractor shall provide an estimate of the size, weight, power and cooling requirements of the system. In addition, the contractor shall provide a rough order of magnitude (ROM) of the production costs based on the system design/architecture for the full frequency coverage system. The contractor shall identify and recommend any new technology development that could further improve performance, reduce risk or reduce size, weight, power, cooling and production costs. These recommendations will be taken into consideration for Science and Technology efforts separate from TO 0002.

The contractor shall update their plan/assessment to demonstrate the maturity of the Critical Technology Elements.

1.1.10 Base Period (Design) Deliverables

- a. System Specification Document (SSD)
- b. Design Description (DD)
- c. Program Management Plan (PMP)
- d. Monthly Technical Status and Financial reports
- e. Program Review Agenda, and Read ahead copy of presentation materials; Presentation materials (annotated) and Meeting minutes
- f. Technical Interchange Meeting (TIM) Materials
- g. Final Report

1.2 Option I (LB Fabrication, Integration and Test) - Phase II

The contractor shall fabricate, integrate and test a LB ADM based on the design developed during the Base Period (Design).

During Option I (LB Fabrication, Integration and Test), the contractor shall accomplish the following tasks:

The contractor shall produce, test and deliver one (1) LB ADM system that meets the requirements identified in the SSD and the design documented in the DD developed during the Base Period (Design).

The contractor shall fabricate hardware and integrate system hardware and software components, subsystems and modules capable of supporting demonstration of CTE maturity, field testing at Chesapeake Bay Detachment (CBD), optional at-sea testing, and environmental testing as required by the CFR.

The contractor shall install the ADM in GFE 20' Conex boxes (modified by the selected contractor(s)) to provide array layout/installation configuration to support Electro-Magnetic Interference (EMI)/Co-site Isolation requirements of the system. Testing will be limited to system integration, CTE demonstration and performance verification testing in facilities determined by the contractor.

1.2.1 Risk Management

The contractor shall update the risk management program established in the Base Period (Design). The contractor shall monitor risk and periodically provide updates to the Risk Management portion of the PMP.

1.2.2 Critical Technology Elements

The contractor shall demonstrate the maturity (TRL 6) of the technology required to satisfy the identified CTEs. The contractor shall continue to update the CTE assessment at each Program Review.

1.2.3 Human Engineering/Human Machine Interface (HE/HMI)

The contractor shall develop and incorporate an engineering display including Human Machine Interface(s) (HMI) and control for the Option I (LB Fabrication, Integration and Test) ADM. This HMI system will provide "stand-alone" control of the system and provide maintenance, status and operator information sufficient for the contractor and Navy engineers to operate, demonstrate and maintain the ADM System.

1.2.4 System Safety

The contractor shall conduct the program in accordance with its internal safety procedures.

The contractor shall pay particular attention to personnel safety as it relates to the high power transmitters and associated high voltages and radiated fields.

1.2.5 Survivability

The contractor shall use best engineering practices to assure the ADM System will be ruggedized to operate at CBD and on board ship up to sea state 4, and survive up to Sea State 6.

1.2.6 Configuration Management (CM)

The contractor shall plan, implement, and maintain a Configuration Management (CM) program in accordance with its internal CM programs. The CM program shall include configuration identification, control, and status accounting for system components.

1.2.7 Quality Control

The contractor shall conduct the program in accordance with its Quality Control procedures.

1.2.8 Reviews

The contractor shall conduct Program Reviews and Technical Interchange Meetings (TIMs).

1.2.9 Installation

The contractor shall install the apertures on a single face on the pallet(s) which will be provided to the contractor as GFE.

The contractor shall design and build an ADM array layout/installation configuration on the pallet(s) to support Electromagnetic Interference (EMI)/Co-site Isolation requirements for the ADM.

The pallet(s) and electronics shall be installed in/on GFE Conex boxes. The Conex installation plan, and CBD environment and power availability are provided in the CBD Installation Parameters and Conex Arrangement paper.

1.2.10 Testing

The contractor shall conduct tests and demonstrations in accordance with the approved Factory Test Procedure (FTP) and the approved CTE Technology Demonstration Test Procedure. Where possible, CTE Technology Demonstration Tests may be combined with the Factory Tests.

The Government shall be given the opportunity to witness all major tests conducted by the selected contractor(s). The contractor shall provide the Government written notice at least two (2) weeks prior to the beginning of each major test.

1.2.11 Option I (LB Fabrication, Integration and Test) Deliverables

- a. Updates to the DD
- b. Updates to the SSD
- c. LB ADM and development and test HMI system delivered F.O.B. Destination to The Chesapeake Bay Detachment, 5813 Bayside Road, Chesapeake Beach,, MD 20732.
- d. Updates to the PMP.
- e. Monthly Technical Status and Financial reports.
- f. Program Review Agenda, and Read ahead copy of presentation materials: Presentation materials annotated and Meeting Minutes.
- g. TIM Materials
- h. Technical Data package. (TDP)
- i. Performance and Acceptance Test Plans and Procedures and Reports.
- j. User's Operating and Maintenance Manuals.
- k. Final Report.

1.3 Option II (HB Fabrication, Integration and Test) – Phase II

The contractor shall fabricate, integrate, and test the additional High Band (HB) receive subsystem and integrate the ESEWIP Transmitter based on the design developed during the Base Period (Design).

During Option II (HB Fabrication, Integration and Test), the contractor shall accomplish the following tasks:

The contractor shall produce, test and deliver one HB ADM subsystem that meets the requirements identified in the SSD and the design documented in the DD developed during the Base Period (Design).

The contractor shall fabricate hardware and integrate system hardware and software components, subsystems (including the ESEWIP Transmitter), and modules capable of supporting demonstration of CTE maturity, field testing at CBD, at-sea testing, and environmental testing as required by the CFR.

The HB subsystem shall be integrated into the LB ADM and installed in 20' Conex boxes (modified by the selected contractor(s)) to provide appropriate array layout/installation configuration to support electromagnetic Interference (EMI)/co-site isolation requirements of the system

1.3.1 Risk Management

The contractor shall update the risk management program established in the Base Period (Design). The contractor shall monitor risk and periodically provide updates to the Risk Management portion of the PMP.

1.3.2 Critical Technology Elements

The contractor shall demonstrate the maturity (TRL 6) of the technology required to satisfy the identified CTEs. The contractor shall continue to update the CTE assessment at each Program Review.

1.3.3 Human Engineering/Human Machine Interface (HE/HMI)

The contractor shall develop and incorporate an engineering display including Human Machine Interface(s) (HMI) and control for the Option II (HB Fabrication, Integration and Test) ADM. If awarded Option I (LB Fabrication, Integration and Test) and Option II (HB Fabrication, Integration and Test) the contractor shall integrate the Option II HMI system with the Option I HMI system. The HMI system will provide "stand-alone" control of the ADM system and provide maintenance, status and operator information sufficient for the contractor and Navy engineers to operate, demonstrate and maintain the ADM System.

1.3.4 System Safety

The contractor shall conduct the program in accordance with its internal safety procedures.

The contractor shall pay particular attention to personnel safety as it relates to the high power transmitters and associated high voltages and radiated fields.

1.3.5 Survivability

The contractor shall use best engineering practices to assure the ADM System will be ruggedized to operate at CBD and on board ship up to sea state 4, and survive up to Sea State 6.

1.3.6 Configuration Management (CM)

The contractor shall plan, implement, and maintain a CM program in accordance with its internal CM programs. The CM program shall include configuration identification, control and status accounting for system components.

1.3.7 Quality Control

The contractor shall conduct the program in accordance with its Quality Control procedures.

1.3.8 Reviews

The contractor shall conduct Program Reviews and Technical Interchange Meetings (TIMs).

1.3.9 Installation

The contractor shall install the apertures on a single face on the pallet(s) which will be provided to the contractor as GFE.

The contractor shall design and build an ADM array layout/installation configuration on the pallet(s) to support Electromagnetic Interference (EMI)/Co-site Isolation requirements for the ADM.

The pallet(s) and electronics shall be installed in/on GFE Conex boxes. The Conex installation plan, and CBD environment and power availability are provided in the Chesapeake Bay Detachment (CBD) Installation Parameters and Conex Arrangement paper.

1.3.10 Testing

The contractor shall conduct tests and demonstrations in accordance with the approved FTP and the approved CTE Technology Demonstration Test Procedure. Where possible CTE Technology Demonstration Tests may be combined with the Factory Tests.

The Government shall be given the opportunity to witness all major tests conducted by the contractor. The contractor shall provide the Government written notice at least two (2) weeks prior to the beginning of each major test.

1.3.11 Option II (HB Fabrication, Integration and Test) Deliverables

- a. Updates to the Design Description
- b. Updates to the SSD
- c. HB ADM and development, test and HMI system
- d. Updates to the PMP
- e. Monthly Technical Status and Financial reports.
- f. Program Review Agenda, and Read Ahead copy of presentation materials: Presentation Materials annotated with Meeting Minutes
- g. TIM Materials
- h. Updated TDD.
- i. Performance and Acceptance Test Plans and Procedures and Reports.
- j. User's Operation and Maintenance Manuals.
- k. Final Report.

1.4 Option III (Integration, Test and Demonstration) – Phase II

Option III (Integration, Test and Demonstration) will consist of integration, testing, and demonstration of the ADM in a relevant environment, such as at CBD and/or aboard a ship.

During Option III, the Navy will provide the aircraft, ships and inertial navigation system necessary for testing at CBD. The need for these items should be addressed in the appropriate test plans. In addition, the Advanced Multifunction RF Concept (AMRFC) arrays that are located at CBD will be made available for testing any concepts that require multiple arrays. The need for this should also be addressed in the appropriate test plans.

Under Option III (Integration, Test and Demonstration) the contractor shall collaborate with the Navy on:

- The design and development of an InTop test facility to investigate installation and co-site interference issues and mitigation.
- Integration of the ADM with the Multifunction EW (MFEW) ADM (or SEWIP Block 2 system if available) and other IO and/or LOS Communications equipment as available.
- Demonstration of the capability of the ADM system, including completion of CTE demonstrations.
- The analysis of test and demonstration data and the preparation of a joint final report.

The contractor shall install the ADM at CBD or other test site within thirty (30) days of Option III exercise or from the end of Options 1 and/or 2, whichever is later. The contractor shall also integrate the ADM with SEWIP Block 2 or MFEW within ninety (90) days of Option III exercise or from the end of Options 1 and/or 2, whichever is later.

The contractor shall provide On-The -Job training at CBD, or other field test site, to Navy Technical Personnel in the operation and maintenance of the ADM.

1.4.1 Option III (Integration, Test and Demonstration) Deliverables

- a. Spares and maintenance items to support the ADM for a period of twelve (12) months
- b. Monthly Technical Status and Financial reports.
- c. Updates to the PMP
- d. Update Option I (LB Fabrication, Integration and Test) TDP
- e. Update Option II (HB Fabrication, Integration and Test) TDP
- f. Updates to the DD
- g. Updates to the SSD
- h. TIM Materials
- i. Performance and Acceptance Test Plans and Procedures and Reports
- j. Updates to User's Operation and Maintenance Manuals
- k. Update to Technical Data Package
- l. Final Report

1.5 Option IV: (Integration, Test and Support) – Phase III

The contractor shall assist the Navy with the integration and testing of the ADM in a relevant environment, such as at the NRL's CBD and/or aboard a ship. Under Option IV, the contractor provide support and logistics beyond Navy acceptance of the ADM including spares for the integration and testing of the ADM with other InTop prototypes and/or unspecified Navy systems at Navy designated test sites.

1.5.1 Option IV (Integration, Test and Support) Deliverables

- a. Spares and maintenance items to support the ADM for a period up to 1 year.
- b. Monthly Technical Status and Financial Reports
- c. Final Report

2.0 Technical Design and General Task Requirements

2.1 Security

As required in Department of Defense Contract Security Classification Specification Form DD254 (attachment number 5), the contractor's facilities shall include appropriate classified document storage and control. The contractor shall allow the Government and Government-designated representatives access to contractor facilities as required. The contractor shall have key personnel cleared for appropriate secret level information.

2.2 Program Management

The contractor shall assign a qualified Program Manager (PM) who shall have complete responsibility for the planning, execution, control and reporting of all aspects of the program, and for directing in-house and sub-contractors' efforts. The PM shall assure that the necessary controls are appropriately applied to in-house hardware, software, firmware and interface development and its associated support efforts (e.g., design reviews, safety program, product assurance, Configuration Management (CM), financial management and subcontract management). The PM shall be provided with the necessary authority to utilize the company's resources to assure the program is accomplished within cost, on schedule and within specified technical performance parameters.

2.3 Contract Work Breakdown Structure (CWBS) and Performance Metrics.

The contractor shall provide a CWBS for this task order that is directly traceable to the overall program schedule and this SOW. The CWBS shall provide visibility and accountability to the lowest level necessary to reflect the way the work is being performed. The contractor shall also identify measures that assess performance by identifying metrics to measure technical, cost and schedule performance. The contractor shall develop and present these metrics at the Kick-Off Meeting. Following approval by the Government, the approved set of metrics shall be used to report program progress at subsequent Program Reviews and in monthly status reports.

2.4 Critical Technology Elements (CTEs)

A goal of this development is to achieve a TRL of 6 for all CTEs for the system. As a result, continued evaluation of expected system performance relative to the CTEs will serve as a primary metric for evaluation during the design, fabrication, integration and test. The initial set of CTEs for the system will be defined by the Navy prior to the start of this effort. During the Base Period (Design), the contractor shall develop a methodology to demonstrate to the Government the performance its design will achieve relative to the specified requirements of each CTE. The methodology may consist of engineering analysis, modeling and simulation, hardware demonstration, or combinations of these. The contractor shall present its proposed methodology and an initial assessment at the Kick Off Meeting. At each subsequent Program Review the contractor shall provide an updated assessment based on an increased level of fidelity or design. During Option I (HB Fabrication, Integration and Test) and Option II (HB Fabrication, Integration and Test) of this task, the contractor shall continue to update its assessment at each Program Review.

2.5 Life Cycle Cost (LCC) Considerations

The contractor shall operate within a management and design environment that encourages effective life cycle cost control. The contractor shall employ methods in the management and design process of the ADM that, when transitioned to Engineering Development, are conducive to minimizing life-cycle costs. The potential impact on future Life Cycle Costs will be a factor in ADM system design trade analysis and addressed at the Initial Design Review (IDR) and the Final Design Review (FDR).

2.6 Risk Management

A Risk Management Plan shall be established as an appendix to the PMP. It shall provide a process to assess the risks associated with program cost, schedule and achievement of technical requirements and CTEs. Specific risk management functions shall include as a minimum: (1) Identify known and potential risks; (2) Assess risks, including a relative ranking by program impact and probability of risk being realized and establish critical thresholds; (3) Define methods or alternatives to mitigate or

minimize these risks, including the identification of criteria upon which programmatic decisions must be made to initiate alternatives or make other programmatic changes. The contractor shall identify (for Navy concurrence) and report the top risks, their mitigation status and any recommendations in monthly reports and at Program Reviews throughout the PoP of the program. The Navy may also identify risks for the contractor to track and report.

2.7 Program Reviews

In the Base Period (Design), Program Reviews will consist of the Kick-Off Meeting, the IDR and the FDR. At each of the reviews, the contractor shall provide system design progress, design documentation as appropriate to ensure performance requirements will be met and CTEs will be demonstrated, an update of program risk assessments, program cost and schedule status, and a review of contract deliverables.

During Option I (LB Fabrication, Integration and Test) and/or Option II (HB Fabrication, Integration and Test) a Program Review will be held every six (6) months to provide detailed fabrication progress, an update of program risk assessments, the status of achievement of CTEs, program cost and schedule status, and the status of contract deliverables.

Within a month prior to the IDR and the FDR the Navy may request Technical Interchange Meetings (TIMs) with the responsible contractor's engineers to review and understand the designs that will be presented at the IDR and the FDR. These will be informal reviews to provide feedback and allow the contractor to revise the IDR and FDR material as appropriate.

The contractor shall provide meeting summary and updated presentation materials annotated with notes pages, and including any supporting technical reports within two weeks after Program Reviews. The annotated FDR presentation materials will be considered the final report for the Base Period.

Program Reviews will be held at the contractor's facility unless otherwise mutually agreed.

2.8 Technical Exchanges

Technical Interchange Meetings (TIMs), Program Discussions, visits and/or conference calls may be initiated by either the Navy or the contractor's Program or Technical Management as needed. The initiating organization should provide an agenda for any TIMs. The contractor shall also maintain the capability to participate in frequent face-to-face coordination meetings and telephone conversations with The Office of Naval Research (ONR), Naval Research Laboratory (NRL) and other appropriate Government representatives. These meetings may occur at the contractor's or Government facilities.

During Options I (LB Fabrication, Integration and Test) and/or II (HB Fabrication, Integration and Test), one or more TIMs may be conducted in between the Program Reviews. During these TIMs, the contractor shall provide progress updates on fabrication, integration, and test. The contractor shall also discuss progress made towards meeting CTE requirements and any technical issues and risks.

2.9 Use Of Existing Corporate Plans, Policies, and Procedures

The contractor is encouraged to use existing corporate plans, policies and procedures (as appropriate) in response to the Contract Data Requirements List (CDRL) deliverable requirements. If existing documents fail to adequately address the requirements, the corporate documentation may be modified as appropriate and submitted.

All CDRL deliveries shall be submitted electronically and in selected contractor format unless otherwise specified in the CDRL.

2.10 System Architecture

The contractor shall utilize the following development approach:

2.10.1 Frequency Coverage

The contractor shall design an overall InTop system architecture that provides the full frequency coverage using no more than two transmit arrays and two receive arrays per quadrant. The system shall be designed so that the frequency coverage of the LB (band 3/4) arrays (transmit and receive) overlaps the frequency coverage of the HB (band 4/5) arrays (transmit and receive) as specified in the CFR. The ADM may have degraded performance in the overlap region, but the contractor shall show what degradation occurs in this region. The minimum upper frequency of the LB arrays is specified in the CFR. The contractor shall then develop a detailed design for an ADM that includes the LB transmit and receive arrays and the HB receive array. The ESEWIP transmit array will be utilized as the HB transmit array. The contractor will not be required to address any gaps in coverage between the ESEWIP array and the HB coverage as proposed in its overall system architecture. The contractor shall integrate the ESEWIP array into the ADM. The system architecture, in addition to supporting the specified EW, IO and LOS Comms capability, will provide an additional IF and RF input(s)/output(s) for each transmit/receive array. These inputs and outputs will allow other systems to utilize the complete capability (full array or sub array) of the transmit and receive arrays.

2.10.2 Modular Open System Approach (MOSA) Requirements

The contractor shall develop and maintain an architecture that is based on MOSA principles. The contractor shall design the system to support rapid and affordable insertion and refreshment of technology through modular design, the use of open standards and open interfaces. The contractor shall make recommendations, with appropriate rationale, regarding the level of systems design beyond which industry should retain intellectual property rights and the resulting impact on affordability or open characteristics of the system. MOSA shall be applied to all systems (hardware, software, firmware) developed or procured by the selected contractor(s).

2.10.3 Use of Open Standards

The contractor shall identify, at each Program review during the Base Period (Design), all key interfaces within the system and identify, with rationale, any interfaces that cannot/don't need to be open and shall also identify all specific standards to be implemented for the key interfaces. Hardware key interfaces will include but not be limited to all interfaces associated with system components¹. Once approved by the government, these specific standards shall be implemented for the respective key interfaces unless alternative standards are approved by the government. In the event that the government approves the use of a non open standard, the contractor must provide the government with Government Purpose Rights for use of the standard.

The implementation of standards shall be in accordance with the following order of precedence:

- (1) Standards as specified within the contract.
- (2) Standards developed by international or national industry standards bodies that have been widely adopted by industry.
- (3) Standards developed by industry, adopted by industry consensus-based standards bodies and widely adopted in the market place.
- (4) Standards not adopted by industry consensus-based standards bodies, but widely adopted and supported in the market place.

¹ An Open Architecture "Component" is one of the parts that make up a system. A component may be hardware or software and may be subdivided into other components; cf. Institute of Electrical and Electronics Engineers (IEEE) Std 610.12-1990
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2.10.4 Modular Design

The contractor shall identify all Hardware and all Software/firmware components within the system. The EW/IO/LOS Comms array and other primary subsystem architectures shall include multiple components to support a modular and scalable design, and the ability to efficiently incorporate future performance and supportability improvements. The specific component allocation shall be provided to the government for approval at an appropriate Base Period Program Review. The contractor shall demonstrate at subsequent reviews, how the selected components provide for scalability of the ADM system.

2.11 Commercial Off the Shelf (COTS)/Non Developmental Items (NDI)

The use of Commercial Off the Shelf (COTS) and Non Developmental Items (NDI) is encouraged. The contractor shall identify any license requirements associated with COTS or NDI components.

2.12 Built in Test (BIT) and Calibration

The ADM shall incorporate sufficient BIT and calibration capability, consistent with a Technology Development effort, for technical personnel to maintain, repair, calibrate and determine the operational status of the delivered system.

2.13 Contractor Interface Working Agreement (IWA)

The contractor shall enter into an IWA with any other organization developing a portion of the system in parallel with the Contractor or with vendors responsible for specific external interfaces or equipment with which the system must integrate. The purpose of the IWA is to assure liaison and interchange of technical interface and programmatic information with other vendors as the system is developed.

2.14 References and Definitions

Guidance documents may be used as an aid in identifying applicable topics to be addressed consistent with meeting the requirements of the program. The contractor is only required to use documents that are marked "required." All other documents are to be used as guidance only. The current version of any government document listed is the version of the Department of Defense (DoD) Index of Specifications and Standards effective on the date of issuance of this solicitation. The Standard Common Data Link documents will not be supplied as GFI, but are available upon request from the issuing command. The request forms are listed below and will be supplied as GFI.

2.14.1 Government Documents

Combined Functional Requirements (CFR) for EW/IO/LOS Comms (Unclassified and Classified Portions) (required)

1. System Segment Specification (SSS) for the Advanced Integrated Electronic Warfare System (AIEWS), 6 June 2000.
2. Capability Development Document (CDD) for Surface Electronic Warfare Improvement Program (SEWIP), Increment 2, Version 1.0, 16 April 2008
3. AIEWS Countermeasures Subsystem Concept Study, NRL/FR/5747—96-9811, 31 October 1996
4. NRL Response to OPNAV N865 Questions re analysis of Alternatives
5. Advanced Multifunction RF Concept Information
- a. Advanced Multifunction RF Concept Final Report, NRL/FR/5303—07-10144, 8 June 2007

b. Advanced Multifunction RF Concept Final Report – Electronic Attack (EA) Classified Appendix, NRL Report FR/5744–07-10138, 20 April 2007

6. Steel Rainbow Information

a. Steel Rainbow Project Overview, NRL Presentation, 31 January 2008

b. Steel Rainbow Threat Analysis Summary, NRL Presentation, 31 January 2008

7. Steel Rainbow Concept of Operation (ConOps), NRL Presentation, 30 January 2008

8. Steel Rainbow EA ERP Requirements, NRL Presentation, 30 January 2008

9. Steel Rainbow Threat Matrices

a. Steel Rainbow ASM Active and Semi-Active Radar Threat Matrix

b. Steel Rainbow Surveillance and Targeting Radar Threat Matrix

c. Steel Rainbow Emitters Below 7500 MHz Threat Matrix

10. Steel Rainbow Requirements & Functional Architecture, NRL Presentation, 31 January 2008

11. Electronic Attack Technique Specification – Advanced Technique Generator Requirements, NRL/FR/5740–09-10,172

12. Threat Study for a Next Generation Surface Naval Electronic Attack System, R.N. Gilfillan, NRL/FR/5740–09-10,172

13. Functional Specifications for AN/SLQ-32A/MK245/SSDS/DDI Integration (R17.03)

a. Functional Specification for AN/SLQ-32A/MK245/SSDS/DDI Integration (R17.03), NRL Branch Report 5750-040, 17 October 1996

b. Notes on Functional Specification for AN/SLQ-32A/MK245/SSDS/DDI Integration (R17.03), 12 March 2009

14. EW/Comm Utilization Information

a. EW/Comm Utilization Study Presentation, S. Davezac, 2 June 2009

b. EW/Comm Utilization Study Commentary, S. Davezac, 20 May 2009

15. Elevation Coverage for Shipboard EA, R. Xander, 29 May 2009

16. Mathcad Analysis of 2-D Antenna Pointing Error, S. Davezac, 1 June 2009

Request for Standard CDL Specification Revision F, Nov 2002 (Available Upon Request)

Request for Standard CDL Specification Revision F Annex C&D/SDD/SCG, Nov 2002 (Available Upon Request)

Request for the Family of CDL Specifications, Feb 2008 (Available Upon Request)

Naval OA Contract Guidebook v 1.1 dated 25 Oct 2007
(<https://acc.dau.mil/CommunityBrowser.aspx?id=183088&lang=en-US>)

NRL Transmitter Program (Unclassified Report and Classified Appendix) (required)

ICD for the STE of TCDL N System

Operation and Maintenance Instructions TCDL

AN/SRQ-4 (KU) Radio Terminal Set

Contract N00014-09-D-0710
Task Order 0002
Attachment Number 1
Page 14 of 15

AN/ARQ-58 Radio Terminal Set

AN/SRQ-4 with EC 157 Cable Running Sheets

AN/SRQ-4 with EC 157 ICD Drawing List

MFEW Interface data including the following documents: (required)

1. External Interface Design Document for the MFEW ES Digital Receiver REV C
2. MFEW ADM Drawings 001-008239 rev. c
3. MFEW ADM Network Topology
4. MFEW ADM Cabling
5. MFEW ADM Equipment Views
6. MFEW ES Processor (ESP) to ESEWD (Display) Interface Control Document (ICD)

InTop Resource Allocation Architecture Document (Draft) (required)

EW/IO/LOS Comms Critical Technology Elements (CTE) (required)

Surface Navy Combat Systems Software Product Line Architecture, Architecture Description Document, Version 1.0, 31 July 2009

Chesapeake Bay Detachment (CBD) Installation Parameters and Conex Arrangement (required)

SSEE Capabilities Production Document

SEWIP Block 2 Documentation (required)

- Block 2 System Scope Document (SSD)
- Block 2 System Requirements Document (SRD)
- External Interface Requirements Specification (IRS) - Draft

Classification Guides

- OPNAVINSTS5513.08b-03
- OPNAVINSTS5513.08b-18
- OPNAVINSTS5513.08b-38.4
- PMW 180 Classification Guide
- Multifunction RF (MRF) Systems, and AMRFC Test Bed Classification Guide

DEPARTMENT OF DEFENSE CONTRACT SECURITY CLASSIFICATION SPECIFICATION <i>(The requirements of the DoD Industrial Security Manual apply to all security aspects of this effort.)</i>				1. CLEARANCE AND SAFEGUARDING a. FACILITY CLEARANCE REQUIRED <div style="text-align: center;">SECRET</div> b. LEVEL OF SAFEGUARDING REQUIRED <div style="text-align: center;">SECRET</div>		SER:139-10	
2. THIS SPECIFICATION IS FOR: (X and complete as applicable)				3. THIS SPECIFICATION IS: (X and complete as applicable)			
X		a. PRIME CONTRACT NUMBER N00014-09-D-0710 / 0002		X		a. ORIGINAL (Complete date in all cases) DATE (YYYYMMDD) 20100920	
		b. SUBCONTRACT NUMBER				b. REVISED (Supersedes all previous specs) REVISION NO. DATE (YYYYMMDD)	
		c. SOLICITATION OR OTHER NUMBER DUE DATE (YYYYMMDD)				c. FINAL (Complete item 5 in all cases) DATE (YYYYMMDD)	
4. IS THIS A FOLLOW-ON CONTRACT? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO. If Yes, complete the following: Classified material received or generated under _____ (Preceding Contract Number) is transferred to this follow-on contract.							
5. IS THIS A FINAL DD FORM 254? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO. If Yes, complete the following: In response to the contractor's request dated _____, retention of the classified material is authorized for the period of _____.							
6. CONTRACTOR (Include Commercial and Government Entity (CAGE) Code)							
a. NAME, ADDRESS, AND ZIP CODE Northrop Grumman Corporation 1580 A West Nursery Road Linthicum, MD 21090-2202 Class Mail: PO Box 1693, Baltimore, MD 21203-1693				b. CAGE CODE 15055		c. COGNIZANT SECURITY OFFICE (Name, Address, and Zip Code) Defense Security Service (IOFCL1) 938 Elkridge Landing Road, Suite 310 Linthicum, MD 21090-2917	
7. SUBCONTRACTOR							
a. NAME, ADDRESS, AND ZIP CODE N/A				b. CAGE CODE		c. COGNIZANT SECURITY OFFICE (Name, Address, and Zip Code) N/A	
8. ACTUAL PERFORMANCE							
a. LOCATION N/A				b. CAGE CODE		c. COGNIZANT SECURITY OFFICE (Name, Address, and Zip Code) N/A	
9. GENERAL IDENTIFICATION OF THIS PROCUREMENT Design, fabricate, test, and deliver prototype hardware for a Electronic Warfare (EW) / Information Operations (IO) / Line-of-Sight Communications (LOS Comms) Advanced Development Model (ADM)							
10. CONTRACTOR WILL REQUIRE ACCESS TO:				11. IN PERFORMING THIS CONTRACT, THE CONTRACTOR WILL:			
a. COMMUNICATIONS SECURITY (COMSEC) INFORMATION		YES	NO	i. HAVE ACCESS TO CLASSIFIED INFORMATION ONLY AT ANOTHER CONTRACTOR'S FACILITY OR A GOVERNMENT ACTIVITY		YES	NO
		X					X
b. RESTRICTED DATA			X	j. RECEIVE CLASSIFIED DOCUMENTS ONLY			X
						X	
c. CRITICAL NUCLEAR WEAPON DESIGN INFORMATION			X	k. RECEIVE AND GENERATE CLASSIFIED MATERIAL			X
							X
d. FORMERLY RESTRICTED DATA			X	l. FABRICATE, MODIFY, OR STORE CLASSIFIED HARDWARE			X
							X
e. INTELLIGENCE INFORMATION			X	m. PERFORM SERVICES ONLY			X
(1) Sensitive Compartmented Information (SCI)			X	n. HAVE ACCESS TO U.S. CLASSIFIED INFORMATION OUTSIDE THE U.S., PUERTO RICO, U.S. POSSESSIONS AND TRUST TERRITORIES			X
(2) Non-SCI		X		o. BE AUTHORIZED TO USE THE SERVICES OF DEFENSE TECHNICAL INFORMATION CENTER (DTIC) OR OTHER SECONDARY DISTRIBUTION CENTER		X	
f. SPECIAL ACCESS INFORMATION			X	p. REQUIRE A COMSEC ACCOUNT		X	
							X
g. NATO INFORMATION			X	q. HAVE TEMPEST REQUIREMENTS			X
							X
h. FOREIGN GOVERNMENT INFORMATION			X	r. HAVE OPERATIONS SECURITY (OPSEC) REQUIREMENTS			X
							X
i. LIMITED DISSEMINATION INFORMATION			X	s. BE AUTHORIZED TO USE THE DEFENSE COURIER SERVICE			X
						X	
j. FOR OFFICIAL USE ONLY INFORMATION		X		t. OTHER (Specify)			
			X	Item 11.g. Submit requests to official listed in item 16.a			
k. OTHER (Specify)							

DD FORM 254, DEC 1999

PREVIOUS EDITION IS OBSOLETE.

Adobe Professional 7.0

12. PUBLIC RELEASE. Any information (classified or unclassified) pertaining to this contract shall not be released for public dissemination except as provided by the Industrial Security Manual or unless it has been approved for public release by appropriate U.S. Government authority. Proposed public releases shall be submitted for approval prior to release ☐ Direct ☒ Through (Specify)

Office of Naval Research, Ms. Betsy DeLong, ONR 31, One Liberty Center, 875 N. Randolph Street, Arlington, VA 22203-1995

to the Directorate for Freedom of Information and Security Review, Office of the Assistant Secretary of Defense (Public Affairs)* for review.
*In the case of non-DoD User Agencies, requests for disclosure shall be submitted to that agency.

13. SECURITY GUIDANCE. The security classification guidance needed for this classified effort is identified below. If any difficulty is encountered in applying this guidance or if any other contributing factor indicates a need for changes in this guidance, the contractor is authorized and encouraged to provide recommended changes; to challenge the guidance or the classification assigned to any information or material furnished or generated under this contract; and to submit any questions for interpretation of this guidance to the official identified below. Pending final decision, the information involved shall be handled and protected at the highest level of classification assigned or recommended. (Fill in as appropriate for the classified effort. Attach, or forward under separate correspondence, any documents/guides/extracts referenced herein. Add additional pages as needed to provide complete guidance.)

** Information generated under this contract shall be classified in accordance with OPNAVINST S5513.8B, enclosures 03, 18, 38, 38.4, and 73; Intelligence, Surveillance, Reconnaissance and Information Operation (PMW 180), Multifunction RF (MRF) Systems, and AMRFC TEST BED classification guides.

1. Document preparation and distribution shall be only as prescribed by the Program Officer.
2. The attached FOUO and Intelligence Information Sheets are hereby made a part of this DD 254.
3. To obtain documentation/information submit requests to official listed in 16.a below.
4. Forward copies of any subcontractor DD254's issued incident to this contract to the official shown in item 16.a below.

Program Officer: Office of Naval Research, Ms. Betsy DeLong, ONR 31;
One Liberty Center, 875 N. Randolph Street, Arlington, VA 22203-1995; Ph: (703) 588-0069
Email (U): Betsy.DeLong@navy.mil; SIPRNET Email: Betsy.Delong@navy.smil.mil

14. ADDITIONAL SECURITY REQUIREMENTS. Requirements, in addition to ISM requirements, are established for this contract. ☐ Yes ☒ No
(If Yes, identify the pertinent contractual clauses in the contract document itself, or provide an appropriate statement which identifies the additional requirements. Provide a copy of the requirements to the cognizant security office. Use item 13 if additional space is needed.)

15. INSPECTIONS. Elements of this contract are outside the inspection responsibility of the cognizant security office. ☐ Yes ☒ No
(If Yes, explain and identify specific areas or elements carved out and the activity responsible for inspections. Use item 13 if additional space is needed.)

16. CERTIFICATION AND SIGNATURE. Security requirements stated herein are complete and adequate for safeguarding the classified information to be released or generated under this classified effort. All questions shall be referred to the official named below.

a. TYPED NAME OF CERTIFYING OFFICIAL	b. TITLE	c. TELEPHONE (Include Area Code)
Diana Pacheco [diana.pacheco@navy.mil]	Contracting Officer for Security Matters	(703) 696-8177

d. ADDRESS (Include Zip Code)
Office of Naval Research
One Liberty Center, 875 N. Randolph Street
Arlington, VA 22203-1995

17. REQUIRED DISTRIBUTION

- | | |
|-------------------------------------|---|
| <input checked="" type="checkbox"/> | a. CONTRACTOR |
| <input type="checkbox"/> | b. SUBCONTRACTOR |
| <input checked="" type="checkbox"/> | c. COGNIZANT SECURITY OFFICE FOR PRIME AND SUBCONTRACTOR |
| <input type="checkbox"/> | d. U.S. ACTIVITY RESPONSIBLE FOR OVERSEAS SECURITY ADMINISTRATION |
| <input type="checkbox"/> | e. ADMINISTRATIVE CONTRACTING OFFICER |
| <input checked="" type="checkbox"/> | f. OTHERS AS NECESSARY ONR 31, 43, 25 |

"FOR OFFICIAL USE ONLY" (FOUO) INFORMATION SHEET**1. General**

a. The "For Official Use Only" (FOUO) marking is assigned to information at the time of its creation by a DoD Agency. It is not authorized as a substitute for a security classification marking but is used on official government information that may be withheld from the public under exemptions 2 through 9 of the Freedom of Information Act.

b. Use of the FOUO marking does not mean that the information cannot be released to the public, only that it must be reviewed by the Government prior to its release to determine whether a significant and legitimate government purpose is served by withholding the information or portions of it.

2. Identification Markings

a. An unclassified document containing FOUO information will be marked "For Official Use Only" at the bottom of the front cover (if any), on the first page, on each page containing FOUO information, on the back page, and on the outside of the back cover (if any). No portion markings will be shown.

b. Within a classified document, an individual page that contains both FOUO and classified information will be marked at the top and bottom with the highest security classification of information appearing on the page. If an individual portion contains FOUO information but no classified information, the portion will be marked "FOUO."

c. Any "For Official Use Only" information released to a contractor by a DoD Agency is required to be marked with the following statement prior to transfer:

This document contains information EXEMPT FROM MANDATORY DISCLOSURE under the FOIA. Exemption(s) apply.

d. Removal of the "For Official Use Only" marking can only be accomplished by the originator or other competent authority. When the "For Official Use Only" status is terminated, all known holders will be notified to the extent practical.

3. Dissemination. Contractors may disseminate "For Official Use Only" information to their employees and subcontractors who have a need for the information in connection with a classified contract.

4. Storage. During working hours, "For Official Use Only" information shall be placed in an out-of-sight location if the work area is accessible to persons who do not have a need for the information. During nonworking hours, the information shall be stored to preclude unauthorized access. Filing such material with other unclassified records in unlocked files or desks is adequate when internal building security is provided during nonworking hours. When such internal security control is not exercised, locked buildings or rooms will provide adequate after-hours protection or the material can be stored in locked receptacles such as file cabinets, desks, or bookcases.

5. Transmission. "For Official Use Only" information may be sent via first-class mail or parcel post. Bulky shipments may be sent by fourth-class mail.

6. Disposition. When no longer needed, FOUO information may be disposed of by tearing each copy into pieces to preclude reconstructing, and placing it in a regular trash container or as directed by the DoD Agency.

7. Unauthorized Disclosure. Unauthorized disclosure of "For Official Use Only" information does not constitute a security violation but the releasing agency should be informed of any unauthorized disclosure. The unauthorized disclosure of FOUO information protected by the Privacy Act may result in criminal sanctions.

INTELLIGENCE INFORMATION SHEET

1. The material does not become the property of the contractor and may be withdrawn at any time. Upon expiration of the contract, all intelligence released and any material using data from the intelligence will be returned to the releasing contracting command or activity [Chief of Naval Research (ONR 43)] for final disposition unless retention is authorized. The contracting command or activity [Chief of Naval Research (ONR 43)] will provide a copy of the retention authorization to ONI-5.
2. Contractors will not release the intelligence material to any activity or person of the contractor's organization not directly engaged in providing services under the contract or to another contractor (including sub-contractors), government agency, private individual, or organization without prior approval of the originator of the material, as outlined in governing directives, and prior approval and certification of need-to-know by the designated project manager/contract sponsor [Chief of Naval Research (ONR 43)].
3. Intelligence material will not be released to foreign nationals or immigrant aliens who may be employed by the contractor, regardless of the level of their security clearance or access authorization, except with the specific permission of ONI-5 requested via the Chief of Naval Research (ONR 43).
4. Intelligence material will not be reproduced without prior approval of the originator. All intelligence material shall bear a prohibition against reproduction while in the custody of the contractor.
5. Contractors will maintain records which will permit them to furnish, on demand, the names of individuals who have access to intelligence material in their custody.

DFARS 252.227-7013 Rights in technical Data—Noncommercial Items

Identification and Assertion of Restrictions on the Government's Use, Release, or Disclosure of Technical Data.

The Contractor asserts for itself, or the persons identified below, that the Government's rights to use, release, or disclose the following technical data should be restricted-

Technical Data to be Furnished With Restrictions*	Basis for Assertion**	Asserted Rights Category***	Name of Person Asserting Restrictions****
(b) (7)(F), (b) (7)(G)	Developed Exclusively at Private Expense (IRAD Project 60090NGAA EA Requirements and Technologies)	Limited Rights	Northrop Grumman Systems Corporation
2. (b) (7)(F), (b) (7)(G)	Developed Exclusively at Private Expense (IRAD Project 60036SPAB North star 2007)	Limited Rights	Northrop Grumman Systems Corporation
(b) (7)(F), (b) (7)(G)	Developed Exclusively at Private Expense (IRAD Project 24330RPCB North star 2008)	Limited Rights	Northrop Grumman Systems Corporation
(b) (7)(F), (b) (7)(G)	Developed Exclusively at Private Expense (IRAD Project 60036SPAB North star 2007)	Limited Rights	Northrop Grumman Systems Corporation
(b) (7)(F), (b) (7)(G)	Developed Exclusively at Private Expense (IRAD Project Falcon Edge H5FRD-01)	Limited Rights	Northrop Grumman Systems Corporation
(b) (7)(F), (b) (7)(G)	Developed Exclusively at Private Expense (IRAD Project Falcon Edge H5FRD-01)	Limited Rights	Northrop Grumman Systems Corporation
(b) (7)(F), (b) (7)(G)	Developed Exclusively at Private Expense (IRAD Project Falcon Edge H5FRD-01)	Limited Rights	Northrop Grumman Systems Corporation
(b) (7)(F), (b) (7)(G)	Developed Exclusively at Private Expense (IRAD Project Falcon Edge H5FRD-01)	Limited Rights	Northrop Grumman Systems Corporation

	Project 35440RPAB North star 2009)		Corporation
	Developed Exclusively at Private Expense (IRAD Project Cancun 60010CBFA)	Limited Rights	Northrop Grumman Systems Corporation
	Developed Exclusively at Private Expense (IRAD Project Falcon Edge H5FRD-01)	Limited Rights	Northrop Grumman Systems Corporation

*If the assertion is applicable to items, components, or processes developed at private expense, identify both the data and each such item, component, or process

**Generally, the development of an item, component, or process at private expense, either exclusive or partially, is the only basis for asserting restrictions on the Government's rights to use, release, or disclose technical data pertaining to such items, components, or processes. Indicate whether development was exclusively or partially at private expense. If development was not at private expense, enter the specific reason for asserting that the Government's rights should be restricted. Include Document number or reference number to support independent research and development funds.

***Enter asserted rights category (e.g., government purpose license rights from a prior contract, rights in SBIR data generated under another contract, limited or government purpose rights under this or a prior contract, or specifically negotiate licenses).

**** Corporation, individual, or other person, as appropriate.

Date 23 August 2010

Printed Name and Title Tori Dettmer, Contracts Representative

Signature

DFARS 252.227-7014 Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation

Identification and Assertion of Restrictions on the Government's Use, Release, or Disclosure of Computer Software.

The Contractor asserts for itself, or the persons identified below, that the Government's rights to use, release, or disclose the following computer software data should be restricted-

Computer Software to be Furnished With Restrictions*	Basis for Assertion**	Asserted Rights Category***	Name of Person Asserting Restrictions****
[REDACTED]	Developed Exclusively at Private Expense (IRAD Project 002848-078 Expanding Iterative Subaperture Estimation (EISE) and BD-99-068 Local Area Positioning Systems)	Restricted Rights	Northrop Grumman Systems Corporation
[REDACTED]	Developed Exclusively at Private Expense (IRAD Project 31270MAAD MILES HUI Development (CY 2007) and X8703GAAC1 MILES Productionization (CY 2008))	Restricted Rights	Northrop Grumman Systems Corporation
[REDACTED]	Developed Exclusively at Private Expense (IRAD Project X9703GAEC MILES SNMP (CY 2009))	Restricted Rights	Northrop Grumman Systems Corporation
[REDACTED]	Developed Exclusively at Private Expense (IRAD Project Falcon Edge H5FRD-01)	Restricted Rights	Northrop Grumman Systems Corporation
[REDACTED]	Developed Exclusively at Private Expense (IRAD Project Falcon Edge H5FRD-01)	Restricted Rights	Northrop Grumman Systems Corporation

*Generally, development at private expense, either exclusively or partially, is the only basis for asserting restrictions on the Government's rights to use, release, or disclose computer software.

**Indicate whether development was exclusively or partially at private expense. If development was not at private expense, enter the specific reason for asserting that the Government's rights should be restricted. Include Document number or reference number to support independent research and development funds.

***Enter asserted rights category (e.g., restricted or government purpose license rights in computer software, government purpose license rights from a prior contract, rights in SBIR software generated under another contract, or specifically negotiated licenses).

**** Corporation, individual, or other person, as appropriate.

Date 23 August 2010

Printed Name and Title Tori Dettmer, Contracts Representative

Signature

A black rectangular box redacting the signature of Tori Dettmer.

Attachment A to 3.0 NGC InTop -7013 and -7014 Forms

Northrop Grumman's IBW Matched Video Detection technical data includes unique algorithms and working code that achieves un-matched performance (functionally, size, resources, power, etc) than what is available in the public domain. In particular, this code has the following unique features and capabilities: solution to matched video bandwidth detection to provide significantly better performance than the current state of the art, 130 or more simultaneously operating matched video detection per IP samples A/D path (10 per sub-channel), fully automatic detector arbitration, stabilized false alarm control, automatic detector mismatched short pulse rejection, instantaneous and simultaneous pulse measurement from multiple detectors, video integrated pulse reconstruction for better than state of the art precision TOA and pulse width measurements, short detector shadow times, and modulation and polarity adaptive processing for resilient signal detect and characterization of modulated signals of unknown polarity.

Northrop Grumman's Kalman Filter Tracker Module software includes unique lines of code and algorithms aspects that transcend the implementation of the widely used Kalman Filter that is publically available. Specifically, this code has unique features dealing with search, acquisition, coast, re-acquisition, RF parameters, etc which constitute the complete tracking function within the larger context of our system controller.

Northrop Grumman's SNMP Module software translates our Kalman Filter Tracker Module to be compatible with SNMP. This specific SNMP code is not available in the public domain.



Reference: DFAR 252.227-7013

IDENTIFICATION AND ASSERTION OF RESTRICTIONS ON THE GOVERNMENT'S USE, RELEASE, OR DISCLOSURE OF RIGHTS IN TECHNICAL DATA - NONCOMMERCIAL ITEMS

The Contractor asserts for itself, or the persons identified below, that the Government's rights to use, release, or disclose the following technical data should be restricted -

Technical Data to be Furnished with Restrictions*	Basis for Assertion**	Asserted Rights Category***	Name of Person Asserting Restrictions****
[REDACTED]	Developed exclusively at private expense	Limited	ITT Electronic Systems Radar, Reconnaissance & Acoustic Systems
[REDACTED]	Developed exclusively at private expense	Limited	ITT Electronic Systems Radar, Reconnaissance & Acoustic Systems
[REDACTED]	Developed exclusively at private expense	Limited	ITT Electronic Systems Radar, Reconnaissance & Acoustic Systems
[REDACTED]	Developed exclusively at private expense	Limited	ITT Electronic Systems Radar, Reconnaissance & Acoustic Systems
[REDACTED]	Developed exclusively at private expense	Limited	ITT Electronic Systems Radar, Reconnaissance & Acoustic Systems
[REDACTED]	Developed exclusively at private expense	Limited	ITT Electronic Systems Radar, Reconnaissance & Acoustic Systems
[REDACTED]	Developed exclusively at private expense	Limited	ITT Electronic Systems Radar, Reconnaissance & Acoustic Systems
[REDACTED]	Developed exclusively at private expense	Limited	ITT Electronic Systems Radar, Reconnaissance & Acoustic Systems

*If the assertion is applicable to items, components, or processes developed at private expense, identify both the data and each such item component, or process.

**Generally, the development of an item, component, or process at private expense, either exclusively or partially, is the only basis for asserting restrictions on the Government's rights to use, release, or disclose technical data pertaining to such items, components, or processes. Indicate whether development was exclusively or partially at private expense. If development was not at private expense, enter the specific reason for asserting that the Government's rights should be restricted.

***Enter asserted rights category (e.g., Government purpose license rights from a prior contract, rights in SBIR data generated under another contract, limited or Government purpose rights under this or a prior contract, or specifically negotiated licenses).

****Corporation, individual or other person, as appropriate.

Date: 23 April 2016

Printed Name and Title: Malcolm Friedman, Contracts Manager Signature: [REDACTED]

DFARS 252.227-7013 Rights in technical Data—Noncommercial Items

Identification and Assertion of Restrictions on the Government's Use, Release, or Disclosure of Technical Data.

The Contractor asserts for itself, or the persons identified below, that the Government's rights to use, release, or disclose the following technical data should be restricted-

	Basis for Assertion**	Asserted Rights Category***	Name of Person Asserting Restrictions****
	Core technology of hardware developed at private expense, considered intellectual property	Limited Rights	Signal Technology Corporation
	Core technology of hardware developed at private expense, considered intellectual property	Limited Rights	Signal Technology Corporation
	Core technology of hardware developed at private expense, considered intellectual property	Limited Rights	Signal Technology Corporation
	Core technology of hardware developed at private expense, considered intellectual property	Limited Rights	Signal Technology Corporation
	Core technology of hardware developed at private expense, considered intellectual property	Limited Rights	Signal Technology Corporation

* If the assertion is applicable to items, components, or processes developed at private expense, identify both the data and each such item, component, or process

** Generally, the development of an item, component, or process at private expense, either exclusive or partially, is the only basis for asserting restrictions on the Government's rights to use, release, or disclose technical data pertaining to such items, components, or processes. Indicate whether development was exclusively or partially at private expense. If

Government's rights should be restricted. Include Document number or reference number to support independent research and development funds.


*** Enter asserted rights category (e.g., restricted or government purpose license rights in computer software, government purpose license rights from a prior contract, rights in SBIR software generated under another contract, or specifically negotiated licenses).

**** Corporation, individual, or other person, as appropriate.

Company: Signal Technology Corp

Date: 26 April 2010

Printed Name and Title: John W. Lichtsinn, Contract Manager

Signature: 

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DFARS 252.227-7014 Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation

Identification and Assertion of Restrictions on the Government's Use, Release, or Disclosure of Computer Software.

The Contractor asserts for itself, or the persons identified below, that the Government's rights to use, release, or disclose the following computer software data should be restricted-

Computer Software to be Furnished With Restrictions*	Basis for Assertion**	Asserted Rights Category***	Name of Person Asserting Restrictions****
[REDACTED]	Core software technology developed at private expense, considered intellectual property	Restricted Rights	Signal Technology Corporation
[REDACTED]	Core software technology developed at private expense, considered intellectual property	Restricted Rights	Signal Technology Corporation
[REDACTED]	Core software technology developed at private expense, considered intellectual property	Restricted Rights	Signal Technology Corporation
[REDACTED]	Core software technology developed at private expense, considered intellectual property	Restricted Rights	Signal Technology Corporation
[REDACTED]	Core software technology developed at private expense, considered intellectual property	Restricted Rights	Signal Technology Corporation

* Generally, development at private expense, either exclusively or partially, is the only basis for asserting restrictions on the Government's rights to use, release, or disclose computer software.

** Indicate whether development was exclusively or partially at private expense. If development was not at private expense, enter the specific reason for asserting that the

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development was not at private expense, enter the specific reason for asserting that the Government's rights should be restricted. Include Document number or reference number to support independent research and development funds.

*** Enter asserted rights category (e.g., government purpose license rights from a prior contract, rights in SBIR data generated under another contract, limited or government purpose rights under this or a prior contract, or specifically negotiate licenses).

**** Corporation, individual, or other person, as appropriate.

Company: Signal Technology Corp

Date: 26 April 10

Printed Name and Title: John W. Hightower, Contract Manager

Signature: 

DFARS 252.227-7013 Rights in technical Data--Noncommercial Items

Identification and Assertion of Restrictions on the Government's Use, Release, or Disclosure of Technical Data.

The Contractor asserts for itself, or the persons identified below, that the Government's rights to use, release, or disclose the following technical data should be restricted-

Technical Data to be Furnished With Restrictions*	Basis for Assertion**	Asserted Rights Category***	Name of Person Asserting Restrictions****
<i>None</i>			

*If the assertion is applicable to items, components, or processes developed at private expense, identify both the data and each such item, component, or process

**Generally, the development of an item, component, or process at private expense, either exclusive or partially, is the only basis for asserting restrictions on the Government's rights to use, release, or disclose technical data pertaining to such items, components, or processes. Indicate whether development was exclusively or partially at private expense. If development was not at private expense, enter the specific reason for asserting that the Government's rights should be restricted. Include Document number or reference number to support independent research and development funds.

***Enter asserted rights category (e.g., government purpose license rights from a prior contract, rights in SBIR data generated under another contract, limited or government purpose rights under this or a prior contract, or specifically negotiate licenses).

**** Corporation, individual, or other person, as appropriate.

4/27/10
Date

Stephen Moss, Contracts Manager

Printed Name and Title


Signature

DFARS 252.227-7014 Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation

Identification and Assertion of Restrictions on the Government's Use, Release, or Disclosure of Computer Software.

The Contractor asserts for itself, or the persons identified below, that the Government's rights to use, release, or disclose the following computer software data should be restricted-

Computer Software to be Furnished With Restrictions*	Basis for Assertion**	Asserted Rights Category***	Name of Person Asserting Restrictions****
<i>None</i>			

*Generally, development at private expense, either exclusively or partially, is the only basis for asserting restrictions on the Government's rights to use, release, or disclose computer software.

**Indicate whether development was exclusively or partially at private expense. If development was not at private expense, enter the specific reason for asserting that the Government's rights should be restricted. Include Document number or reference number to support independent research and development funds.

***Enter asserted rights category (e.g., restricted or government purpose license rights in computer software, government purpose license rights from a prior contract, rights in SBIR software generated under another contract, or specifically negotiated licenses).

**** Corporation, individual, or other person, as appropriate.

4/22/10
Date

Stephen Moss, Contracts Manager


Signature

Customer Name: MC-001-InTop
Supplier Proposal No: 1004038

Supplier: L-3 Communications Narda Microwave West

FAR Information: DFARS 252.227-7014- Identification and Assertions of Restrictions... Computer Software DFARS 252.227-7013 - Identification and Assertions of Restrictions... Technical Data

The Contractor asserts for itself, or the persons identified below, that the Government's rights to use, release, or disclose the following technical data should be restricted.

Software Description to be Furnished With Restrictions *	Basis for Assertion**	Asserted Rights Category**	Name of Person Asserting Restrictions****
[REDACTED]	Developed exclusively at private expense	Restricted Rights	L-3 Communications, Narda Microwave West (60583)
[REDACTED]	Developed exclusively at private expense	Restricted Rights	L-3 Communications, Narda Microwave West (60583)
[REDACTED]	Developed exclusively at private expense	Restricted Rights	L-3 Communications, Narda Microwave West (60583)
[REDACTED]	Developed exclusively at private expense	Restricted Rights	L-3 Communications, Narda Microwave West (60583)
[REDACTED]	Developed exclusively at private expense	Restricted Rights	L-3 Communications, Narda Microwave West (60583)
Technical Data to be Furnished With Restrictions *	Basis for Assertion**	Asserted Rights Category**	Name of Person Asserting Restrictions****
[REDACTED]	Developed exclusively at private expense	Limited Rights	L-3 Communications, Narda Microwave West (60583)

Customer Name: MC-001-InTop
Supplier Proposal No: 1004038

Supplier: L-3 Communications Narda Microwave West

Technical Data to be Furnished With Restrictions *	Basis for Assertion**	Asserted Rights Category**	Name of Person Asserting Restrictions****
[REDACTED]			
[REDACTED]	Developed exclusively at private expense	Limited Rights	L-3 Communications, Narda Microwave West (60583)
[REDACTED]	Developed exclusively at private expense	Limited Rights	L-3 Communications, Narda Microwave West (60583)

Page 2 of 4

Customer Name: MC-001-InTop
Supplier Proposal No: 1004038


Supplier: L-3 Communications Narda Microwave West

Technical Data to be Furnished With Restrictions *	Basis for Assertion**	Asserted Rights Category**	Name of Person Asserting Restrictions****
	Developed exclusively at private expense	Limited Rights	L-3 Communications, Narda Microwave West (60583)
	Developed exclusively at private expense	Limited Rights	L-3 Communications, Narda Microwave West (60583)

Page 3 of 4

Customer Name: MC-001-InTop
Supplier Proposal No: 1004038

Supplier: L-3 Communications Narda Microwave West

Technical Data to be Furnished With Restrictions *	Basis for Assertion**	Asserted Rights Category**	Name of Person Asserting Restrictions****
			

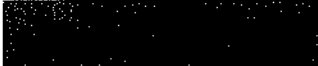
*If the assertion is applicable to items, components, or processes developed at private expense, identify both the data and each such item, component, or process.

**Generally, the development of an item, component, or process at private expense, either exclusively or partially, is the only basis for asserting restrictions on the Government's rights to use, release, or disclose technical data pertaining to such items, components, or processes. Indicate whether development was exclusively or partially at private expense. If development was not at private expense, enter the specific reason for asserting that the Government's rights should be restricted.

*** Enter asserted rights category (e.g., government purpose license rights from a prior contract, rights in SBIR data generated under another contract, limited or government purpose rights under this or a prior contract, or specifically negotiated licenses).

****Corporation, individual, or other person as appropriate.

Signature
Printed Name
Title
Date


Deborah Alosi-Horn
Manager, Business Administration
August 11, 2010

DFARS 252.227-7013 Rights in technical Data—Noncommercial Items

Identification and Assertion of Restrictions on the Government's Use, Release, or Disclosure of Technical Data.

The Contractor asserts for itself, or the persons identified below, that the Government's rights to use, release, or disclose the following technical data should be restricted-

Technical Data to be Furnished With Restrictions*	Basis for Assertion**	Asserted Rights Category***	Name of Person Asserting Restrictions****
None	Developed Exclusively at Private Expense	Limited Rights	Northrop Grumman Systems Corporation
	Developed Exclusively at Private Expense	Limited Rights	Northrop Grumman Systems Corporation
	Developed Exclusively at Private Expense	Limited Rights	Northrop Grumman Systems Corporation

*If the assertion is applicable to items, components, or processes developed at private expense, identify both the data and each such item, component, or process

**Generally, the development of an item, component, or process at private expense, either exclusive or partially, is the only basis for asserting restrictions on the Government's rights to use, release, or disclose technical data pertaining to such items, components, or processes. Indicate whether development was exclusively or partially at private expense. If development was not at private expense, enter the specific reason for asserting that the Government's rights should be restricted. Include Document number or reference number to support independent research and development funds.

***Enter asserted rights category (e.g., government purpose license rights from a prior contract, rights in SBIR data generated under another contract, limited or government purpose rights under this or a prior contract, or specifically negotiate licenses).

**** Corporation, individual, or other person, as appropriate.

Date: August 18, 2010

Printed Name and Title: Jeffrey M. Allard, Contracts Manager

Signature



DFARS 252.227-7014 Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation

Identification and Assertion of Restrictions on the Government's Use, Release, or Disclosure of Computer Software.

The Contractor asserts for itself, or the persons identified below, that the Government's rights to use, release, or disclose the following computer software data should be restricted-

Computer Software to be Furnished With Restrictions*	Basis for Assertion**	Asserted Rights Category***	Name of Person Asserting Restrictions****
None	Developed Exclusively at Private Expense	Restricted Rights	Northrop Grumman Systems Corporation
	Developed Exclusively at Private Expense	Restricted Rights	Northrop Grumman Systems Corporation
	Developed Exclusively at Private Expense	Restricted Rights	Northrop Grumman Systems Corporation

*Generally, development at private expense, either exclusively or partially, is the only basis for asserting restrictions on the Government's rights to use, release, or disclose computer software.

**Indicate whether development was exclusively or partially at private expense. If development was not at private expense, enter the specific reason for asserting that the Government's rights should be restricted. Include Document number or reference number to support independent research and development funds.

***Enter asserted rights category (e.g., restricted or government purpose license rights in computer software, government purpose license rights from a prior contract, rights in SBIR software generated under another contract, or specifically negotiated licenses).

**** Corporation, individual, or other person, as appropriate.

Date: August 18, 2010

Printed Name and Title: Jeffrey M. Allard, Contracts Manager

Signature: _____



FINANCIAL ACCOUNTING DATA SHEET - NAVY

1. CONTRACT NUMBER (CRITICAL) N0001409D0710		2. SPIN (CRITICAL) 0002		3. MOD (CRITICAL)		4. PR NUMBER 10PR10256-00									
CLIN/SLIN	5. LINE OF ACCOUNTING										7. AMOUNT (CRITICAL)	NAVY INTERNAL USE ONLY REF DOC/ACRN			
	A. ACPN (CRITICAL)	B. APPROPRIATION (CRITICAL)	C. SUBHEAD (CRITICAL)	D. OBJ CLA	E. PARM	F. RFM	G. SA	H. AAA (CRITICAL)	I. IT	J. PAA					
	K. COST CODE														
			PROJ UNIT	MCC	PDU & SUF										
	AB	1701319	W3DP	255	RA	313	0	068342	2D	000000	02913	000	N2P0	\$67,824.26	PR#10PR10256-00 FRC:1N2P PR#10PR10256-00 FRC:1017 PR#10PR10256-00 FRC:1019
	AC	1701319	W3DP	255	RA	313	0	068342	2D	000000	02913	000	0170	\$112,207.74	
	AA	1701319	W3DP	255	RA	313	0	068342	2D	000000	02913	000	0190	\$19,968.00	
PAGE TOTAL											\$200,000.00				
GRAND TOTAL											\$200,000.00				
PREPARED/AUTHORIZED BY:						COMPTROLLER APPROVAL:									
DATE:						FOR FISCAL DATA AND SIGNATURE									
						BY _____						for COMPTROLLER, ONR CONTRACT REVIEWED			

FINANCIAL ACCOUNTING DATA SHEET – NON-NAVY DoD ACTIVITIES

1. CONTRACT NUMBER (CRITICAL) N0001409D0710		2. SPIN (CRITICAL) 0002		3. MOD (CRITICAL)		4. PR NUMBER 10PR10256-00			
5. CLIN/SUN	6. ACRN (CRITICAL)	7. ACCOUNTING CITATION				8. AMOUNT (CRITICAL)		NAVY INTERNAL USE ONLY REF DOC/ACRN	
		<p>This page is intentionally blank</p>							
PAGE TOTAL						\$.00			
GRAND TOTAL						\$.00			
PREPARED/AUTHORIZED BY: DATE:						COMPTROLLER APPROVAL: FOR FISCAL DATA AND SIGNATURE BY _____ for COMPTROLLER, ONR CONTRACT REVIEWED DATE:			